Politically Unengaged, Distrusting, and Disaffected Individuals Drive the Link Between Compulsory Voting and Invalid Balloting

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ABSTRACT

Invalid ballots are relatively common in countries with compulsory voting, yet there is no cross-national evidence as to *who* is more likely to cast a blank or spoiled ballot where voting is forced. I argue that increased rates of blank and spoiled balloting where voting is obligatory result from the behavior of the politically unknowledgeable, uninterested, untrusting, and disaffected, who are incentivized to turn out to the polls where they can be sanctioned for abstention. To test this, I conduct an individual-level examination of the influence of compulsory voting on invalid balloting across countries. I find support for my expectations with analyses of survey data from several American democracies, many of which compel electoral participation.

For more than a century, scholars and commentators alike have argued that compulsory electoral participation can help socialize individuals into the democratic system, leading them to acquire political knowledge and interest, political trust, and positive orientations toward democracy (see Barthélemy 1912; Broomall 1893; Engelen 2007, 32; Lacroix 2007, 194; Lijphart 1997, 10; Nerincx 1901; See 2007, 597). Additionally, numerous studies find that individuals who are uninformed about and uninterested in political matters, who are untrusting of democracy's primary actors and institutions, and who are negatively oriented toward the democratic system turn out to the polls at significantly higher rates when subject to compulsory voting (e.g. Carlin and Love 2015; Irwin 1974; Singh 2015), which suggests that compelled participation does indeed foster democratic engagement.

Yet, according to country-level, cross-national research, invalid balloting rates are higher where voting is mandatory (e.g. Power and Garand 2007; Reynolds and Steenbergen 2006; Uggla 2008). This is puzzling, given compulsory voting's purportedly positive effects on political engagement. Confronting this puzzle requires an individual-level explanation together with an examination of behavior under both compulsory and voluntary rules, which is missing from extant research. Recognizing that individuals need not be especially engaged or democratically-oriented to show up at the polls where voting is mandatory, I theorize that compulsory voting causes the politically unknowledgeable and uninterested, the politically distrusting, and those disaffected with democracy to cast blank or spoiled ballots at relatively high rates. I further argue that, as a result of changing citizenship norms in the democratic world, political distrust and disaffection with democracy will have a particularly strong relationship with invalid balloting where voting is compulsory.

Using AmericasBarometer data, I find an array of support for my expectations with multilevel regression analyses and regression discontinuity analyses, which exploit the fact

that five of the countries in my sample with compulsory voting make turnout voluntary for senior citizens. In the appendix, I demonstrate the robustness of my findings to alternate conceptualizations of the dependent and independent variables, a different estimation technique, different model specifications, and a separate source of cross-national survey data from the Latinobarometer.

This study represents a novel theoretical and empirical treatment of the microfoundations of the link between compulsory voting and invalid balloting across countries. My findings suggest that compulsory voting is more likely to boost nonconformity via increased invalid balloting than to meaningfully socialize individuals into political engagement and pro-democracy orientations. In the conclusion, I consider the potential importance of my findings for debates over the utility and justifiability of compulsory voting and for countries that are considering a change in voting rules.

Previous Research on Blank and Spoiled Balloting Under Compulsory Voting

Invalid balloting under compulsory rules has been described as the "functional equivalent of abstention" under optional voting (Lavareda 1991, 40; see also Hirczy 1994). This is apparent with regard to the behavior of the politically uninformed and uninterested. In voluntary systems, such individuals turn out to vote at a relatively low rate (e.g. Blais and St-Vincent 2011; Bowler and Donovan 2013; Carreras and Castañeda-Angarita 2014), and in compulsory systems, where abstention entails a penalty, they are more likely to cast blank and spoiled ballots. For example, McAllister and Makkai (1993) find that recent immigrants, who tend to have relatively little political knowledge, are more likely to spoil their ballots under Australia's compulsory voting rule, and Power and Roberts (1995) find that illiteracy is positively related to invalid balloting in Brazil's compulsory voting system. Carlin (2006)

finds that, under Chile's former compulsory rule, those with less political interest and younger voters were relatively likely to cast invalid ballots.

Political distrust and disaffection also affect turnout and invalid voting. As Prothro and Grigg (1960, 294) note, "those with the most undemocratic principles are also those who are least likely to act." Such "inaction" via electoral abstention is often used to express dissatisfaction or to advocate for reform (e.g. Grönlund and Setälä 2007). When individuals are compelled to the polls, abstention from voting becomes costly, and such sentiment may instead be conveyed with blank and spoiled ballots. Hirczy (1994), comparing voting behavior across Austrian provinces, finds that political disaffection manifested in an increased percentage of invalid ballots in the provinces with compulsory voting, while such an effect was not apparent where voting was voluntary.[1] In Belgium, which mandates voter participation, Hooghe, Marien, and Pauwels (2011) find that individuals who are politically distrusting are more likely to cast blank or spoiled ballots. In Australia, Goot (1985, 203) mentions that blank and spoiled ballots have been used to protest both specific candidates and the institution of compulsory voting itself.

Such relationships are also found outside of the highly developed world. For example, Power and Roberts (1995) find that blank and spoiled balloting were most pronounced in Brazil's former military regime, which made voting obligatory, when its manipulation of the democratic process was particularly egregious. Carlin (2006) finds that, under Chile's former compulsory voting rule, those who were discontented with regime performance, democratic institutions, and political authorities were more likely to cast invalid ballots. In Bolivia's judicial elections, in which participation is compulsory, Driscoll and Nelson (2014) find that support for the ruling party and the president relates negatively to

[1] Hirczy's study considered elections through 1986. Compulsory voting has since been abandoned in Austria nationwide.

the probability of casting a blank or spoiled ballot, while invalid balloting is more common in opposition strongholds. In Argentina's compulsory system, blank and spoiled ballots are so closely associated with voter disillusionment and distrust that they are colloquially referred to as *voto bronca*, or "angry votes" (Uggla 2008, 1141).

In sum, existing research establishes a robust link between invalid balloting rates and compulsory voting, and it suggests that this link is driven by the behavior of politically unengaged and democratically disaffected groups. However, it neither grounds this expectation in theory nor tests it in an appropriate empirical framework. Studies of invalid voting under compulsory rules conducted at the individual-level focus on a single country operating under a static electoral rule (e.g. Carlin 2006; Driscoll and Nelson 2014; Hooghe et al. 2011; McAllister and Makkai 1993). At the same time, studies of invalid voting that do leverage spatial or temporal variation in compulsory voting only examine aggregate-level returns (e.g. Kouba and Lysek 2016; Power and Garand 2007; Reynolds and Steenbergen 2006; Uggla 2008),[2] which can at best provide an indirect test of individual-level mechanisms.

Theory and Hypotheses

In what follows, I advance and test a novel, individual-level theory, which considers how compulsory voting should induce invalid balloting among critical segments of the population—the politically unknowledgeable and uninterested, those who are untrusting of the democratic political system, and the democratically disaffected. My expectations contrast

[2] In any case, only Kouba and Lysek (2016) make an attempt to use a macro-level variable to test a micro-level expectation in interaction with compulsory voting. They find that compulsory voting has a stronger effect on invalid balloting in elections with many competitors. They interpret this to mean that individuals in compulsory systems are more likely to cast invalid ballots when they do not believe their vote is efficacious.

with the argument noted at the outset, which states that compulsory voting can socialize individuals into political engagement and pro-democracy orientations.

Lending support to this socialization thesis, some studies find a link between compulsory voting and higher levels of political knowledge and engagement in the public (e.g. Berggren 2001; Gordon and Segura 1997). However, a preponderance of published work finds no such link or finds it to be weak (e.g. Birch 2009, chp. 4; Carreras forthcoming; de Leon and Rizzi 2014; Loewen, Milner, and Hicks 2008; Selb and Lachat 2009, 575, note 1; Sheppard 2015). This lack of support may come about because voters need not inform themselves about the issues of the day in order to avoid a sanction where voting is mandatory. Rather than creating an electorate that seeks out political information in order to meaningfully complete ballots out of sense of democratic duty, I argue that compulsory voting instead boosts the propensity of the least engaged and least democratically oriented people to lodge a blank or spoiled ballot. There are two mechanisms that undergird this behavior.

First, in order to avoid a sanction where voting is compulsory, politically ignorant, disinterested individuals will show up to the polls. However, there is no method for ensuring that they cast valid ballots, and they will not instinctively put deep thought into their votes. Instead, they will routinely cast blank and spoiled ballots because they lack the information necessary to make a meaningful choice or because they are not interested in the competing parties and candidates to the extent that they wish to choose one over the others. Where voting is voluntary, alternatively, such individuals will generally stay home, as doing so will not lead to a potential penalty.

Second, individuals who are distrusting of or discontented with the democratic system, who prefer to abstain, may become irritated where their participation is forced, and

thereby become less willing to lodge a meaningful ballot. Individuals prefer to feel that their actions are intrinsically motivated (deCharms 1968), and when they are forced into a behavior, their motivation to engage in that behavior drops (Deci 1975). Coercion and punishment are also associated with decreased cognitive engagement with one's environment, decreased belief in the legitimacy of the coercer and its authorities, and lower levels of interest in one's assigned tasks, and being forced into a behavior can damage one's sense of the social bond and enhance any existing belief that the governmental or legal system and its authorities are illegitimate (Scheff and Retzinger 1991; Sherman 1993; Tyler 2006). Henn and Oldfield (forthcoming) and Singh (forthcoming) show that electoral coercion, in particular, can harm attitudes toward the democratic system and deepen existing resentments. Thus, while individuals who distrust democratic processes and actors or are disillusioned with the democratic system may participate on election day to avoid a sanction where voting is compulsory, they will be inclined to signal their distrust or disillusionment by leaving their ballots blank or spoiling them in reaction to democratic coercion.

In contrast with the suggestion that compulsory voting creates a more informed and civically-oriented electorate, my reasoning proposes that political ignorance, disinterest, distrust, and disaffection trigger invalid balloting where voting is mandatory. This dynamic will be most apparent in compulsory systems in which abstainers are likely to be punished and harshly penalized, as individuals are less likely to alter their behavior in response to unenforced compulsory rules. Indeed, extant research finds compulsory rules have the biggest effect on turnout where they are routinely enforced and stiffly sanctioned (e.g. Panagopoulos 2008; Singh 2011). This leads to the following observable implications, expressed below in hypothesis form:

H_1: Where voting is mandatory, blank and spoiled ballots are more likely. This will be especially apparent where compulsory rules are enforced and penalties for abstention are substantial.

H_2: Where voting is mandatory, blank and spoiled ballots are more likely, particularly among individuals who are uninterested in or ignorant of politics. This will be especially apparent where compulsory rules are enforced and penalties for abstention are substantial.

H_3: Where voting is mandatory, blank and spoiled ballots are more likely, particularly among individuals who are untrusting of key democratic institutions and actors. This will be especially apparent where compulsory rules are enforced and penalties for abstention are substantial.

H_4: Where voting is mandatory, blank and spoiled ballots are more likely, particularly among individuals who are negatively oriented toward democracy and its processes. This will be especially apparent where compulsory rules are enforced and penalties for abstention are substantial.

My unique individual-level treatment also allows me to consider whether ignorance and disinterest, political distrust, and negative orientations toward democracy have differing effects on the relationship between compulsory voting and invalid balloting. Recent work by Dalton and Welzel (2014a), who differentiate between "allegiant" and "assertive" citizens, provides some insight into this possibility. Allegiant citizens are politically trusting, deferential to authority, and supportive of democratic principles and practice. Conversely, assertive citizens are politically distrusting, are skeptical of authority, and, while they may support the principles of the democratic system, do not support democracy in practice. As initially observed by Almond and Verba (1980), political culture throughout the democratic

world has become less allegiant and more assertive in recent decades (allegiant citizens are especially uncommon in modern democracies in Latin America and post-communist Europe (Dalton and Welzel 2014b, 295-297)).

Assertive citizens are drawn to activities that challenge elites (Jakobsen and Listhaug 2014). Invalid balloting is one such activity, and because assertive citizens are negatively predisposed toward authority, they should be especially prone to casting blank or spoiled ballots where their electoral participation is coerced. Further, while citizenship values are strongly linked to political trust and orientations toward democracy, they are largely orthogonal to political interest (e.g. Dalton and Shin 2014; Dalton and Welzel 2014c; Welzel and Alvarez 2014). This suggests that political ignorance and disinterest should do less to shape the link between compulsory voting and invalid balloting than political distrust and negative orientations toward democracy. In hypothesis form:

> H_5: Political distrust and negative orientations toward democracy more strongly condition the relationship between compulsory voting and blank and spoiled balloting than political ignorance and disinterest.

Data and Variable Measurement

I gather data from the AmericasBarometer,[3] which biennially surveys individuals across the Caribbean and North, Central, and South America. My sample includes surveys from the 21 countries in which the necessary questions, discussed below, were asked. The included countries are mostly, but not exclusively, Latin American.[4] These are listed in Table A1 of

[3] Available at: http://www.vanderbilt.edu/lapop/. I use the 2004-2012 Grand Merged File.

[4] The number of countries included in each wave in the 2004-2012 AmericasBarometer Grand Merged File varies. The question used to create the dependent variable (see below) is not asked in Canada and the United States, and it was not asked in the 2004 or 2006 survey waves. Results do not change substantively when I limit the sample to Latin American countries.

the appendix.

My hypotheses suggest that compulsory voting's behavioral effects will be more forcefully realized where individuals can be confident that any decision to abstain will be met with a punishment. Therefore, following Fornos, Power, and Garand (2004) and subsequent authors (e.g. Dettrey and Schwindt-Bayer 2009; Kostadinova and Power 2007; Kouba and Lysek 2016; Power and Garand 2007; Uggla 2008), I create a four-category variable to classify countries according to both the existence of a compulsory rule and the degree to which sanctions are enforced—which itself is strongly associated with the severity of the punishment for nonvoting (Singh 2011, 105).

The four categories are:

VV: Countries with purely voluntary voting.
CV_{low}: Countries that mandate voting but do not employ sanctions for abstention.
CV_{med}: Countries that have legal sanctions for abstention but do not generally enforce them in practice.
CV_{high}: Countries that mandate turnout and enforce sanctions in practice.[5]

Information on compulsory voting laws is from Payne, Zovatto, and Díaz (2006) and the Institute for Democracy and Electoral Assistance.[6] Turnout is compulsory in 15 of the countries in my sample, and Table A1 in the appendix indicates which countries employ compulsory voting and the degree to which sanctions for abstention are enforced.

I argue that the increased propensity to cast a blank or spoiled ballot in a compulsory system is most pronounced among individuals who are ignorant of or uninterested in political matters, those who are untrusting of democratic institutions and actors, and those

[5] In Argentina, Bolivia, Brazil, and Peru, voting is not compulsory for individuals over 70 years of age. In Ecuador, the cutoff age is 65. Further, individuals in Argentina, Brazil, and Ecuador aged 16 and 17 are enfranchised but not compelled to vote. Individuals in these age groups in these countries are thus excluded from the analyses. (The exclusions for 16 and 17 year-olds did not become law in Argentina until 2012 or in Ecuador until 2009.) Further, in Bolivia, mandatory voting begins at age 21, unless an individual is married, in which case the relevant age is 18. Bolivians aged 18-20 were excluded from the analysis. These exclusions did not affect substantive conclusions.
[6] Available at: http://www.idea.int/vt/

who are negatively oriented toward the democratic system. The AmericasBarometer asks several questions that allow me to capture such attitudes and characteristics. To gauge Lack of Political Information and Interest, I use *misunderstanding of political issues, lack of political information*, and *lack of political interest*. To capture Political Distrust, I use *distrust of government, distrust of congress*, and *distrust of elections*. Finally, to gauge Negative Orientations toward Democracy, I use *belief that democracy does not matter, belief that leaders do not care*, and *dissatisfaction with democracy*. I provide detailed information on my measurement of these variables and full question wording in Section 13 of the appendix.

I use factor analysis to create scales of Lack of Political Information and Interest, Political Distrust, and Negative Orientations toward Democracy. Because the constituent variables are measured ordinally and dichotomously, I employed polychoric correlations in the creation of the matrices input into the factor analyses. In each factor analysis, the first factor accounted for over 85 percent of the common variance, and I use scores on these factors to create my scales. In Section 2 of the appendix, I consider each constituent variable separately, and this approach does not alter my substantive conclusions.

The dependent variable is a dichotomous indicator for whether one intends to cast a blank or spoiled ballot. The question wording is: "If the next election were to be held this week, what would you do?

- I would not vote
- I would vote for the candidate or party of current government
- I would vote for a candidate or party other than the current government
- I would vote but leave the ballot blank or spoiled."

I assigned individuals a 1 if they selected the last option and a 0 otherwise.[7] The proportion of individuals intending to cast a blank or spoiled ballot across countries is provided in Table A1 of the appendix.

Answers to survey questions are imperfect proxies for true behavior. In Section 6 of the appendix, I review the potential consequences of the use of survey questions to gauge voting behavior, and I compare intended invalid balloting rates in my sample to official reports of invalid balloting. I also estimate models that use recalled votes in place of intended votes in the creation of my dependent variable. This does not alter substantive conclusions.

Control Variables

There are, of course, individual-level factors that may modify the impact of compulsory voting on invalid balloting beyond those I identify in my hypotheses. If such variables are also correlated with political awareness and attitudes toward democracy, their omission could bias my findings. As such, I control for age and education, both of which are known to affect political knowledge and interest, political trust, and democratic orientations (e.g. Catterberg and Moreno 2006; Galston 2001; Karp, Banducci, and Bowler 2003) and may also relate to blank and spoiled balloting (cf. Carlin 2006; McAllister and Makkai 1993; Power and Roberts 1995; Uggla 2008). Age is measured in tens of years, and, to facilitate cross-country comparison of diverse education systems, individuals with a university education are assigned a 1, and others are assigned a 0.[8] The resulting variables are called *age* and *college*. In Section 7 of the appendix, I introduce additional controls for political ideology

[7] Though treating blank and spoiled ballots as distinct can be illuminating (e.g. Driscoll and Nelson 2014), the nature of the survey question asked across countries by the AmericasBarometer requires me to consider them jointly.

[8] In Section 9 of the online appendix, I demonstrate that results are robust to the use of an ordinal measure of education.

and whether a respondent lives in an urban or rural area. Results are robust to these specifications.

At the macro level, I control for *economic development*, *democratic development*, and *corruption*, each of which is potentially related to the propensity to cast a blank or spoiled ballot (e.g. Power and Garand 2007; Uggla 2008) and to political knowledge and interest, political trust, and orientations toward democracy (e.g. Catterberg and Moreno 2006; Knack and Keefer 1997). Economic development is measured as GDP per capita at the time of the survey, adjusted for purchasing power and reported in constant thousands of US dollars. Data are from the World Bank.[9] To measure democratic development, I use the Polity IV Index.[10] This ranges from -10 to 10, with higher values indicating consolidated democracy. Finally, to measure corruption, I use Transparency International's Corruption Perceptions Index,[11] which ranges from 0 to 10. I reverse the original coding so that higher values indicate more corruption.

All variables are summarized in Table A2 in the appendix. The AmericasBarometer did not ask each of the questions that I use to measure the independent variables consistently across waves. As such, the number of individuals in the sample varies between 41,942 and 76,232 across the models, and the number of country-year surveys included in each model varies between 32 and 49.[12]

[9] Available at http://data.worldbank.org; for Argentina and Jamaica, information on purchasing power parity adjusted per capita gross domestic product was not available from the World Bank. Figures for these two countries were gathered from the CIA World Factbook, which is available at https://www.cia.gov/library/publications/the-world-factbook.
[10] Available at: http://www.systemicpeace.org
[11] Available at: http://transparency.org/policy_research/surveys_indices/cpi
[12] In Section 10 of the appendix, I demonstrate that results are substantively the same when missing survey responses are multiply imputed.

Results from Multilevel Models

Individuals (level 1) in the data set are clustered within survey country-years (level 2). I estimate multilevel logit models, which account for this tiered data structure and the dichotomously measured dependent variable. I fit a unique intercept to each country-year, and the coefficients on each key individual-level variable—those that capture disinterest and low information, distrust, and disaffection—vary randomly across country-years. I estimate separate equations for each of these variables.[13] This gives:

$$\text{Logit}\{\Pr(y_{ij})\} = \alpha_j + \mathbf{X}_{ij}\boldsymbol{\beta} + \delta_j z_{ij}, \text{ where}$$

$$\alpha_j = \mathbf{W}_j\boldsymbol{\gamma} + \zeta_j.$$

In this equation, i indexes each individual and j indexes each country-year. y_{ij} is coded 1 if an individual casts a blank or spoiled ballot and 0 otherwise. The random variation around the country-year-specific mean is captured by ζ_j.[14, 15] In each estimation, the key individual-level variable is captured with z_{ij}, and the effect of each is denoted δ_j, with the j subscript indicating that this effect varies randomly over country-years. $\mathbf{X}_{ij}$ contains the remaining individual-level variables, and $\mathbf{W}_j$ contains the country-year-level covariates. To account for possible correlation between the random effects and each key individual-level variable, the $\mathbf{W}_j$ matrix includes their country-year-specific means, $\bar{z}_j$. $\boldsymbol{\beta}$ is the coefficient vector associated with $\mathbf{X}_{ij}$, and $\boldsymbol{\gamma}$ is the coefficient vector associated with $\mathbf{W}_j$.

[13] I do this because of marked collinearity, which is discussed further below. In my final model, I include all three scales in the same equation.

[14] The intercept variance, var(ζ_j), is calculated at the y-axis. Thus, the scale of any variable with a varying slope is consequential (e.g. Rabe-Hesketh and Skrondal 2005, 66). As I estimate random slopes on each key independent variable, z, I center them to have a mean of zero. (I transform these variables back to their original scales in the figures.) Thus, in each specification, var(ζ_j) is calculated at the mean of each key independent variable.

[15] Due to my use of a logit link, the variance of the random error for each individual, ε_{ij}, is $\pi^2/3$ by assumption.

I also estimated three-level models that considered individuals to be clustered within survey country-years, which were further considered to be clustered in countries. With few surveys per country, and with just 21 countries in the sample, this approach may be imprudent (e.g. Stegmueller 2013). Further, because substantive results are the same with a three-level approach, and because the three-level models indicate that a preponderance of the unmodeled contextual variation exists at the country-year level, I proceed with a two-level setup. Results of the three-level models are provided in Section 3 of the appendix.

In Model 1 of Table 1 I test my first hypothesis, which, following previous research, predicts that the probability of casting a blank or spoiled ballot will be greater in countries with compulsory rules, especially where abstainers can be confident in receiving a sanction for their non-participation. To test the hypothesis, in addition to the control variables, I include dummy variables for the three categories of compulsory voting, excluding fully voluntary systems as the baseline category. The results largely support Hypothesis 1: blank and spoiled balloting is least common in countries with voluntary voting and unenforced compulsory voting (category CV_{low}). Where voting is compulsory and abstention is potentially sanctioned, blank and spoiled ballots are more common, especially if enforcement is strict (category CV_{high}). Using the results of Model 1, I plot the predicted probability[16] of casting a blank or spoiled ballot across each voting system in Figure 1. As illustrated in the figure, all else being equal, where voting is voluntary, this probability is about 0.04, and, in countries with the strongest compulsory rules, it is over ten percentage points higher, at about 0.16.

[16] All predicted probabilities are calculated with the control variables held at their means. The relative effects displayed in the figures may not align perfectly with those gleaned from the coefficient estimates provided in Table 1. This is because the relative linear impact of a given variable on the *latent propensity* to cast a blank or spoiled ballot may differ from the relative nonlinear impact of that variable on the *probability* of doing so (see Berry, DeMeritt, and Esarey 2010).

Table 1: Compulsory Voting, Blank and Spoiled Balloting, and Individual-Level Characteristics

Conditioning Variable in Model	-	Lack of Info. and Interest	Political Distrust	Neg. Orient. Toward Dem.	All Three
Model	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Lack of Information and Interest		0.194*			0.209
		(0.063)			(0.108)
Political Distrust			0.002		-0.004
			(0.060)		(0.068)
Negatively Oriented Toward Democracy				0.127	0.009
				(0.092)	(0.120)
Compulsory Voting					
CV_{low}	-0.121	-0.087	-0.296*	0.285*	0.533
	(0.103)	(0.066)	(0.113)	(0.074)	(0.364)
CV_{med}	0.905*	0.536*	1.147*	1.112*	0.937*
	(0.066)	(0.065)	(0.089)	(0.074)	(0.381)
CV_{high}	1.540*	1.326*	1.887*	1.893*	2.259*
	(0.057)	(0.057)	(0.087)	(0.066)	(0.421)
Interactions with Compulsory Voting					
CV_{low} × Lack of Information and Interest		0.130			0.133
		(0.079)			(0.128)
CV_{med} × Lack of Information and Interest		0.043			0.006
		(0.077)			(0.123)
CV_{high} × Lack of Information and Interest		0.248*			0.136
		(0.074)			(0.120)
CV_{low} × Political Distrust			0.104		0.071
			(0.072)		(0.081)
CV_{med} × Political Distrust			0.210*		0.204*
			(0.071)		(0.078)
CV_{high} × Political Distrust			0.274*		0.226*
			(0.068)		(0.077)
CV_{low} × Negatively Oriented Toward Democracy				0.003	-0.021
				(0.116)	(0.142)
CV_{med} × Negatively Oriented Toward Democracy				0.084	-0.037
				(0.113)	(0.138)
CV_{high} × Negatively Oriented Toward Democracy				0.266*	0.126
				(0.118)	(0.135)

Table 1 Continued on Next Page

Table 1 Continued

Controls					
Age	-0.114*	-0.113*	-0.111*	-0.117*	-0.109*
	(0.009)	(0.010)	(0.012)	(0.011)	(0.013)
College	-0.063	0.110*	-0.080	-0.078	0.064
	(0.045)	(0.047)	(0.055)	(0.051)	(0.059)
Economic Development	0.025*	0.083*	0.015	0.021*	0.049
	(0.008)	(0.008)	(0.009)	(0.007)	(0.042)
Democratic Development	-0.035*	-0.105*	0.043	-0.005	0.023
	(0.013)	(0.013)	(0.022)	(0.016)	(0.129)
Corruption	0.041	-0.056*	0.117*	0.056*	0.180
	(0.021)	(0.019)	(0.037)	(0.025)	(0.193)
Country-Year Mean of Lack of Information and Interest		1.054*			1.209
		0.123			(0.975)
Country-Year Mean of Political Distrust			-0.090		-0.798
			0.048		(0.512)
Country-Year Mean of Neg. Orient. Toward Democracy				0.200	1.463
				0.107	(1.278)
Constant	-2.966*	-5.081*	-4.116*	-3.916*	-9.234*
	(0.256)	(0.376)	(0.378)	(0.318)	(3.371)
$var(\zeta_j)$	0.502	0.463	0.773	0.709	0.352
$var(\delta_{j,\text{ Lack of Info. and Interest}})$		0.010			0.012
$var(\delta_{j,\text{ Political Distrust}})$			0.007		0.007
$var(\delta_{j,\text{ Neg. Orient. Toward Dem.}})$				0.037	0.019
Individuals	76232	72352	47625	56717	41942
Country-Years	49	49	32	49	32
AIC	40908.60	38661.05	25724.82	30188.51	22568.88
Prob > χ^2	<0.001	<0.001	<0.001	<0.001	<0.001

Note: Dependent variable is intended blank or spoiled balloting. Results are from multilevel logistic regressions. Standard errors in parentheses. *Significant at $p<.05$ (two-sided)

Hypotheses 2-4 predict that the effect of compulsory rules on an individual's propensity to cast a blank or spoiled ballot is moderated by his or her level of political awareness and interest, the degree to which he or she is politically trusting, and his or her orientations toward democracy, especially where compulsory voting laws are strictly enforced. To test for the existence of these conditional relationships, in Models 2-4 of Table 1, I interact each of the scales used to capture these three attributes with the dummy

variables for the three categories of compulsory voting, again excluding fully voluntary systems as the baseline category.

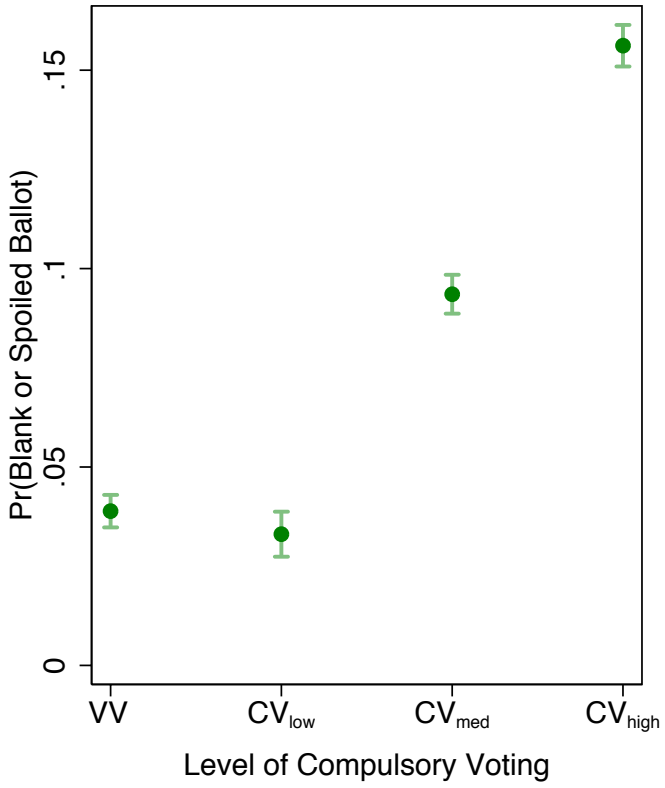

Figure 1: Blank and Spoiled Balloting in Voluntary and Compulsory Voting Systems

Note: Vertical brackets represent 95% confidence intervals. Results are from Model 1 of Table 1.

The data support Hypotheses 2-4: in Models 2-4, the effect of compulsory voting on the probability of casting a blank or spoiled ballot tends to be stronger among the politically unaware and uninterested, the politically distrusting, and those with negative orientations toward democracy. Further, in line with the hypotheses' predictions, these amplificatory effects tend to be strongest where compulsory rules have "teeth."

The results of Models 2-4 are illustrated in Figure 2. Each circle in the figure represents the probability of casting a blank or spoiled ballot in each category of compulsory voting and in voluntary systems. It is clear that the effect of compulsory rules on one's

probability of casting a blank or spoiled ballot is strongly conditioned by individual-level characteristics. On the one hand, for those who are politically aware and interested, those who are politically trusting, and those who are positively oriented toward democracy, living in a country with compulsory voting does relatively little to boost the probability of blanking or spoiling one's ballot. On the other hand, for individuals who are politically unaware and uninterested, those who are politically untrusting, and those who are negatively oriented toward democracy, living in a country with a compulsory voting law can sharply increase the probability of casting a blank or spoiled ballot, especially if the compulsory rule is enforced and penalties for abstention are substantial. This militates against the idea that compulsory voting can spur political knowledge and interest, political trust, and positive orientations toward democracy.

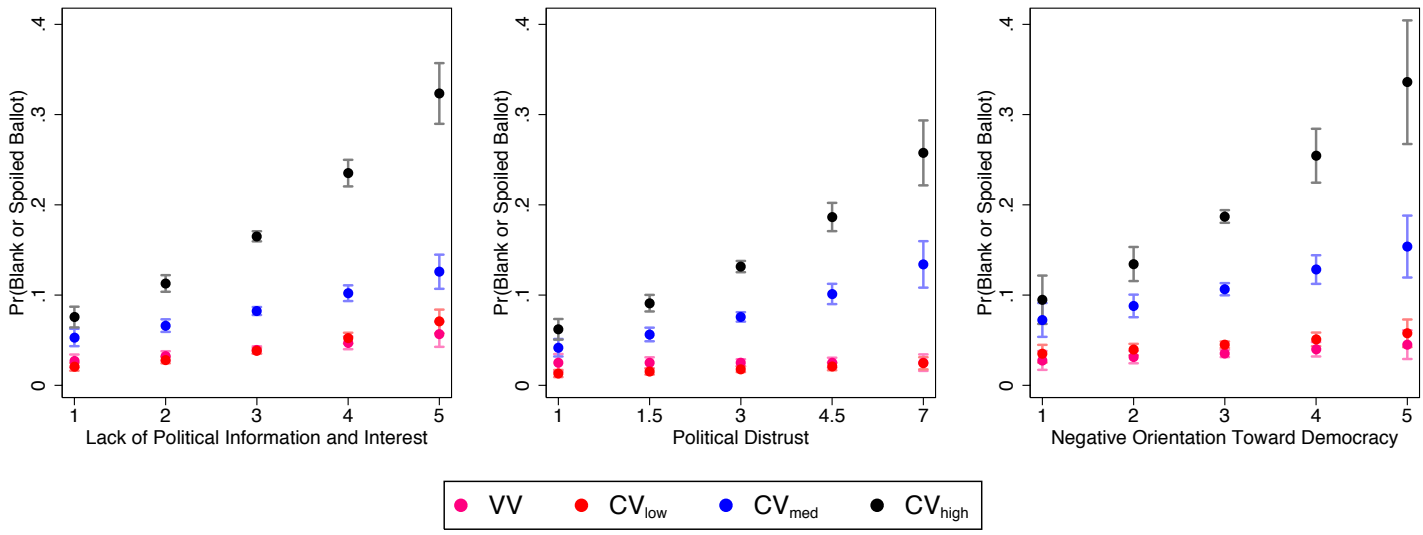

Figure 2: Conditional Effects of Voting Rules on Blank and Spoiled Balloting

Note: Vertical brackets represent 95% confidence intervals. Results are from Models 2-4 of Table 1.

Hypothesis 5 puts forth that political distrust and negative attitudes toward democracy should more strongly condition the relationship between compulsory voting and blank and spoiled balloting than political ignorance and disinterest. However, working against the hypothesis, Figure 2 shows that all three scales play a similar role in conditioning this relationship.[17] To conduct a fuller test of Hypothesis 5, I estimate the effects of all three scales simultaneously in Model 5 of Table 1. Interpreting the results requires a bit of caution, as the scales are highly collinear,[18] and the adverse effects of collinearity are extensive in multilevel models (Kreft and Leeuw 1998, 105; Shieh and Fouladi 2003).

When all three scales are entered into the model, results show that political distrust heightens the link between blank and spoiled balloting and both moderate and strong compulsory rules, while none of the coefficients on the interactions involving lack of political information and interest or negative orientations toward democracy reaches statistical significance. Still, I find no evidence that the moderating impact of political distrust is substantively greater than that of political ignorance and disinterest.[19] Further, while political distrust proves important to the link between blank and spoiled balloting and compulsory rules, the effects of negative orientations toward democracy unexpectedly wash out. Thus, Model 5 provides very limited support for Hypothesis 5.[20]

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[17] Note that the analyses presented in Section 2 of the appendix suggest that only two of the three components that make up the Lack of Political Information and Interest scale work to strengthen the link between compulsory voting and invalid balloting.

[18] The variance inflation factors are 6.92, 8.45, and 8.02 for Lack of Political Information and Interest, Political Distrust, and Negative Orientations toward Democracy, respectively.

[19] I calculated the difference in the effect of a change from voluntary voting to the highest level of compulsory voting on invalid balloting at the minimum value of the Political Trust scale and at the maximum of the Political Trust scale. I then calculated the difference in the effect of a change from voluntary voting to the highest level of compulsory voting at the minimum value of the Lack of Political Information scale and at the maximum of the Lack of Political Information scale. The difference in these differences was not statistically significant (p=0.39, two-sided).

[20] I conduct a range of alternate and supplemental analyses, which, in the interest of space, are documented in the appendix. Section 2 of the appendix shows that the models hold when the Lack of Political Information and Interest, Political Distrust, and Negative Orientations toward Democracy scales are disaggregated. Section 3 demonstrates that results are robust to a three-level multilevel modeling setup. Sections 4 and 5 show that

Analyses Leveraging Age Thresholds in Compulsory Systems

It is difficult to identify causality with cross-national analyses of survey responses. To gain additional empirical leverage, I make use of compulsory voting age thresholds, which are employed in five of the countries in my sample. Specifically, Argentina, Bolivia, Brazil, and Peru make voting voluntary for individuals aged 70 and over, while, in Ecuador, voting is voluntary for those 65 and above. These arbitrary cutoffs, which quasi-randomly assign individuals to compulsory and voluntary voting conditions, provide a nice setting for regression discontinuity (RD) analyses.[21]

RD models estimate a function on either side of a value and subsequently estimate the difference between the two functions at this value (see, e.g., Imbens and Lemieux 2008; Lee 2008). I use a sharp RD design, which allows me estimate the effect of a binary treatment (compulsory voting) strictly determined by the value of a predictor (age). I estimate local polynomial regressions among observations nearby each side of the compulsory voting age cutoff.

I illustrate the results of the analyses in Figure 3, in which I take the "Politically Informed and Interested," the "Politically Trusting," and the "Positively Oriented Toward Democracy" to be those below the 25th percentile of each scale, and I take the "Politically Ignorant and Disinterested," the "Politically Distrusting," and the "Negatively Oriented

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results are insensitive to the exclusion of abstainers or a dependent variable that considers abstainers and invalid balloters separately. Section 6 shows that results are very similar when I use recalled votes in place of intended votes in the creation of my dependent variable. Section 7 demonstrates that results are robust to additional controls for political ideology and whether one lives in an urban or rural area. Section 8 shows that results are unchanged when respondents living in Ecuador, which has low turnout compared to other countries classified as having a strict compulsory voting rule, are excluded from the sample. Section 9 shows that results are robust to an ordinal, rather than dichotomous, measure of education. Section 10 demonstrates that results are substantively unchanged when missing survey responses are multiply imputed. Section 12 shows that my hypotheses find additional support when tested with data from the Latinobarometer.

[21] The thresholds do not correspond to the ages at which individuals become eligible for government pensions. See Section 11 of the appendix for details.

Toward Democracy" to be those above the 75th percentile of each scale. The bottom two rows of the figure demonstrate that, among those who are politically distrusting and those who are negatively oriented toward democracy, blank and spoiled balloting is more likely among individuals who are forced to vote; as individuals in these groups cross the cutoff threshold, and are therefore no longer required to vote, their propensity to cast a blank or spoiled ballot declines. The effects are -6.91 percentage points for the politically distrusting and -4.39 percentage points for those who are negatively oriented toward democracy, as illustrated in the middle-right and bottom-right panels, respectively.[22] For the politically trusting and those who are positively oriented toward democracy, these negative effects are not present, as illustrated in the middle-left and bottom-left panels, respectively. This aligns with the expectations of Hypotheses 3 and 4.

The regression discontinuity results do not indicate that the relationship between mandated turnout and blank and spoiled balloting is conditioned by political information and interest, as illustrated in the top row of the figure. While this contradicts Hypothesis 2, it is supportive of Hypothesis 5, which puts forth that political distrust and negative orientations toward democracy do more to condition the relationship between compulsory rules and invalid balloting than political ignorance and disinterest. In Section 11 of the appendix, I present details of the RD analyses. Further, a series of null results associated with placebo age cutoffs suggest that the discontinuities observed in Figure 3 are a genuine result of a shift from a compulsory voting rule to a voluntary rule, rather than an artifact of the aging process.

[22] With random effects for countries included, these effects are estimated as -7.82 and -3.44 percentage points, respectively.

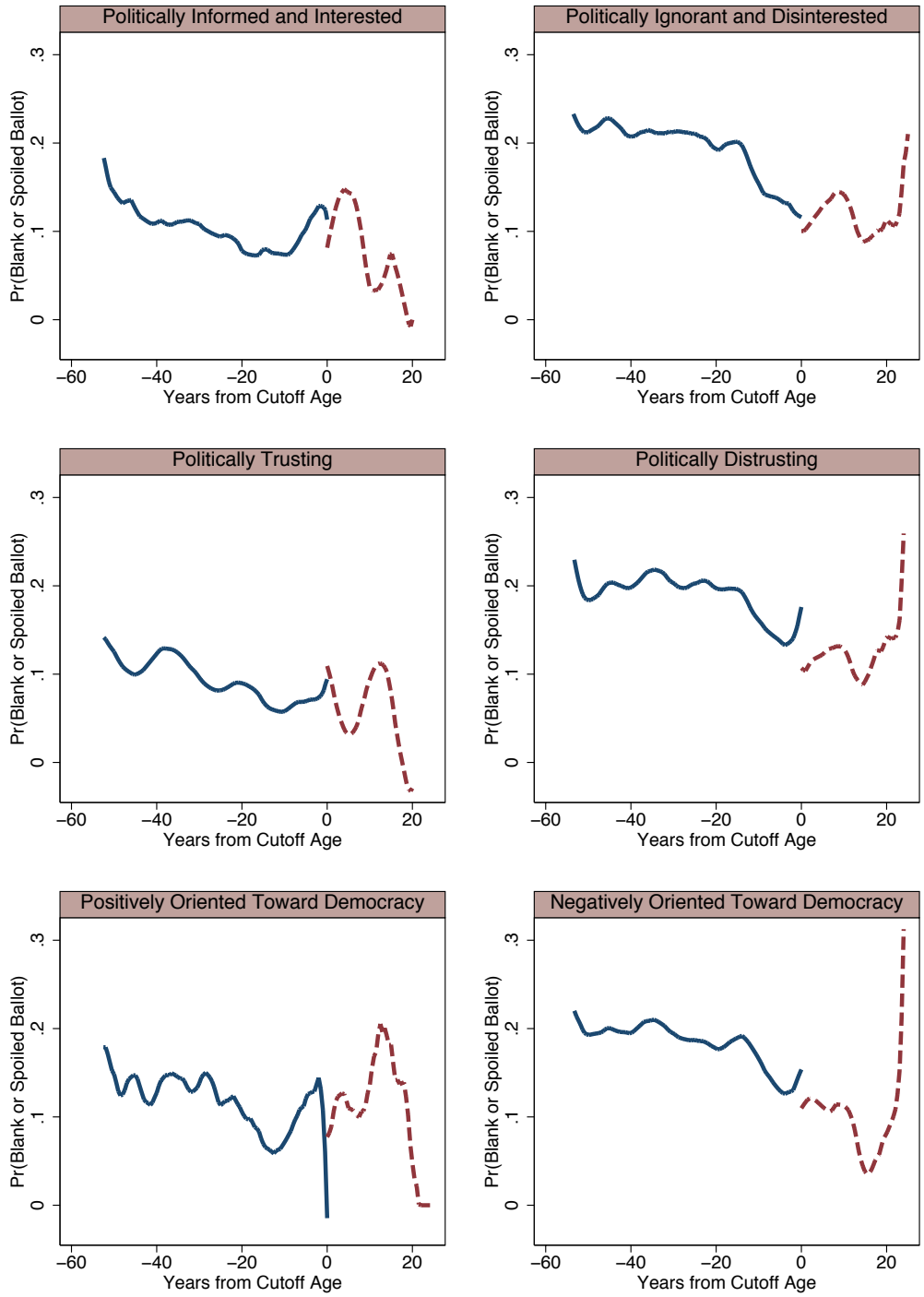

Figure 3: Blank and Spoiled Balloting Above and Below Compulsory Voting Age Thresholds

Note: Plots contain smoothed polynomials estimated on both side of the age cutoffs. The cutoff age is 70 in Argentina, Bolivia, Brazil, and Peru and 65 in Ecuador.

Conclusion

About ten years ago, Blais (2006, 113) noted that "we know nothing about the microfoundations of compulsory voting." Today, still relatively little is known about how individual-level factors interact with compulsory rules to shape outcomes. In an effort to begin filling this knowledge gap, this study examines the influence of compulsory voting on blank and spoiled balloting across both individuals and countries.

I first find that, relative to voluntary voting, compulsory voting increases the incidence of blank and spoiled ballots, especially where sanctions for abstention are routinely enforced. I then demonstrate *who* is responsible for such an increase—compulsory voting's positive relationship with the propensity to cast a blank or spoiled ballot is largely due to the behavior of individuals who are politically unaware and uninterested, individuals who are negatively oriented toward the democratic process, and, especially, individuals who are untrusting of democratic actors and institutions.

Those in favor of compulsory voting may hail these results as evidence that politically unsophisticated, untrusting, or disaffected individuals make use of their "out" where their presence at the ballot box is forced, and they thus need not contribute to the social choice when they lack the desire or skills to do so. For their part, opponents of mandatory voting may instead argue that the relatively high rate of blank and spoiled balloting among politically unaware, uninterested, untrusting, and disillusioned individuals where participation is obligatory is evidence that compulsory voting does not socialize such individuals into embracing civic values and seeking out political knowledge, a dynamic the institution's proponents have championed as one of its beneficial effects for over a century (see Barthélemy 1912; Broomall 1893; Engelen 2007, 32; Lacroix 2007, 194; Lijphart 1997, 10; Nerincx 1901; See 2007, 597). Seen from another angle, these results suggest that, even

where compulsory voting boosts participation, leaders may feel free to behave unscrupulously when they perceive that the electorate is unlikely to observe such behavior and punish it at the next election. In the words of Carlin and Love (2015, 57), where "those weakly invested in politics" do not cast meaningful ballots under compulsory voting, "the potential for moral hazard among elites" will increase.

In addition to an increase in turnout, the results of this paper suggest that constitutional designers in democracies considering the adoption of compulsory voting should expect a rise in blank and spoiled ballots. This will largely result from the balloting behavior of the politically unknowledgeable, uninterested, untrusting, and disaffected**.** Policymakers interested in boosting turnout might willingly accept this pattern, as it is not, in and of itself, detrimental to democracy. Of course, a system that incentivized both attendance at the polls and well-reasoned ballots would do more to improve the democratic process. Future research may consider what such a system might look like.

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Appendix

Politically Unengaged, Distrusting, and Disaffected Individuals Drive the Link Between Compulsory Voting and Invalid Balloting

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1. Countries Included and Summary Statistics

Table A1 lists the countries included in the analyses and provides information on which countries use compulsory voting and, if so, the level of compulsion. Table A1 also gives the proportion of individuals in each country intending to cast a blank or spoiled ballot, as reported in the AmericasBarometer. Table A2 provides summary statistics for each variable included in the analyses.

Table A1: AmericasBarometer Countries Included, Compulsory Rules, and Intended Invalid Voting Levels

Country	Compulsory Voting	Level of Compulsion	Also in Latino-barometer	Proportion Intended Invalid Ballots
Argentina[*#]	✓	medium	✓	0.065
Bolivia[*$]	✓	high	✓	0.187
Brazil[*#]	✓	medium	✓	0.128
Chile[+]	✓	high	✓	0.170
Colombia		-	✓	0.196
Costa Rica	✓	low	✓	0.032
Dominican Republic	✓	low	✓	0.023
Ecuador[#@]	✓	high	✓	0.169
El Salvador	✓	low	✓	0.064
Guatemala	✓	low	✓	0.064
Guyana		-		0.023
Haiti		-		0.036
Honduras	✓	medium	✓	0.036
Jamaica		-		0.015
Mexico	✓	medium	✓	0.071
Nicaragua		-	✓	0.024
Panama	✓	low	✓	0.057
Paraguay	✓	medium	✓	0.096
Peru[*]	✓	high	✓	0.205
Uruguay	✓	high	✓	0.122
Venezuela		-	✓	0.042

Note: Information on compulsory voting laws is from Payne, Zovatto, and Díaz (2006) and the Institute for Democracy and Electoral Assistance.

[*]Voting is not compulsory for individuals over 70 years of age.

[#]Individuals aged 16 and 17 are enfranchised but not compelled to vote.

[$]Mandatory voting begins at age 21 for unmarried individuals and age 18 for married individuals.

[+]Compulsory voting for registered voters only. No compulsory voting after 2012 (most recent year in data set for Chile is 2008).

[@]Voting is not compulsory for individuals over 65 years of age.

Table A2: Summary Statistics

	Mean	Std. Dev.	Minimum	Maximum
AmericasBarometer				
Individual-Level				
Intended Blank or Spoiled Ballot	0.085	0.279	0.000	1.000
Recalled Blank or Spoiled Ballot	0.029	0.168	0.000	1.000
Misunderstanding of Political Issues (scale input variable)	3.879	1.730	1.000	7.000
Lack of Political Information (scale input variable)	0.341	0.309	0.000	1.000
Lack of Political Interest (scale input variable)	2.828	0.977	1.000	4.000
Distrust of Government (scale input variable)	3.831	1.914	1.000	7.000
Distrust of Congress (scale input variable)	4.313	1.804	1.000	7.000
Distrust of Elections (scale input variable)	3.811	1.859	1.000	7.000
Belief that Democracy Does Not Matter (scale input variable)	0.096	0.294	0.000	1.000
Belief that Leaders Do Not Care (scale input variable)	4.538	1.938	1.000	7.000
Dissatisfaction with Democracy (scale input variable)	2.424	0.727	1.000	4.000
Lack of Political Information and Interest (scale)	2.695	0.858	0.794	4.461
Political Distrust (scale)	4.222	1.644	1.056	7.389
Negative Orientation Toward Democracy (scale)	2.785	0.867	0.815	4.469
Age (10s)	3.793	1.504	1.600	9.900
College	0.108	0.310	0.000	1.000
Ideology	5.684	2.487	1.000	10.000
Urban	0.689	0.463	0.000	1.000
Survey-Level				
Economic Development	8.207	3.424	2.682	14.200
Democratic Development	7.971	1.456	5.000	10.000
Corruption	6.502	1.356	3.100	8.100
Latinobarometer				
Individual-Level				
Intended Blank or Spoiled Ballot	0.066	0.249	0.000	1.000
Lack of Political Interest	2.962	0.964	1.000	4.000
Distrust of Government	2.646	0.974	1.000	4.000
Distrust of Congress	2.871	0.915	1.000	4.000
Belief that Democracy Does Not Matter	0.188	0.391	0.000	1.000
Dissatisfaction with Democracy	2.601	0.879	1.000	4.000
Age (10s)	3.964	1.621	1.600	9.800
College	0.064	0.244	0.000	1.000
Survey-Level				
Economic Development	8.497	3.456	2.425	14.363
Democratic Development	7.660	2.513	-3.000	10.000
Corruption	6.464	1.417	2.800	8.100

2. Results Using Constituent Variables Instead of Scales

In the main text, I use scales to capture information and interest, political trust, and orientations toward democracy. Specifically, to capture Lack of Political Information and Interest, I use *misunderstanding of political issues, lack of political information*, and *lack of political interest*. To capture Political Distrust, I use *distrust of government, distrust of congress*, and *distrust of elections*. And, to capture Negative Orientations toward Democracy, I use *belief that democracy does not matter, belief that leaders do not care*, and *dissatisfaction with democracy*.

Here, instead of interacting each category of compulsory voting with the scales, I interact each with each variable input into the scales. I again exclude fully voluntary systems as the baseline category. This leads to a total of nine interactive models, rather than three, as reported in the main text. I present the results of these analyses in Figure A1.

Hypotheses 2-4 predict that the effect of compulsory rules on an individual's propensity to cast a blank or spoiled ballot is moderated by his or her level of political awareness and interest, the degree to which he or she is politically trusting, and his or her orientations toward democracy, especially where compulsory voting laws are strictly enforced. In eight of the nine interactive models illustrated in Figure A1, this general pattern is observed. Further, these amplificatory effects tend to be strongest where compulsory rules have "teeth"—category 3 of the compulsory voting scale.

The results of the model that uses the lack of political information as the conditioning independent variable only weakly support my expectations. While the model, like the others, indicates that blank and spoiled ballots are more likely where compulsory rules are enforced, it provides limited evidence that this difference is more pronounced among those who lack political information. This finding provides support for Hypothesis 5, which puts forth that political distrust and negative orientations toward democracy do more

to condition the relationship between compulsory rules and invalid balloting than political ignorance and disinterest.

There is debate over whether political knowledge and interest stem from the same underlying concept or from separate sources (cf. Luskin 1987; Zaller 1992). Fiske, Kinder and Larter (1983) note that what they term "political expertise" is a result of a knowledge of politics that is "interlocked" with political interest (385). Following Fiske et al. and other work (e.g. Miller 2011; Neuman 1986; Zaller 1990), I employ a combinatory approach in the main text. The disaggregated analyses presented here suggest that interest and knowledge may act differently as conditioners of the link between compulsory voting and invalid balloting.

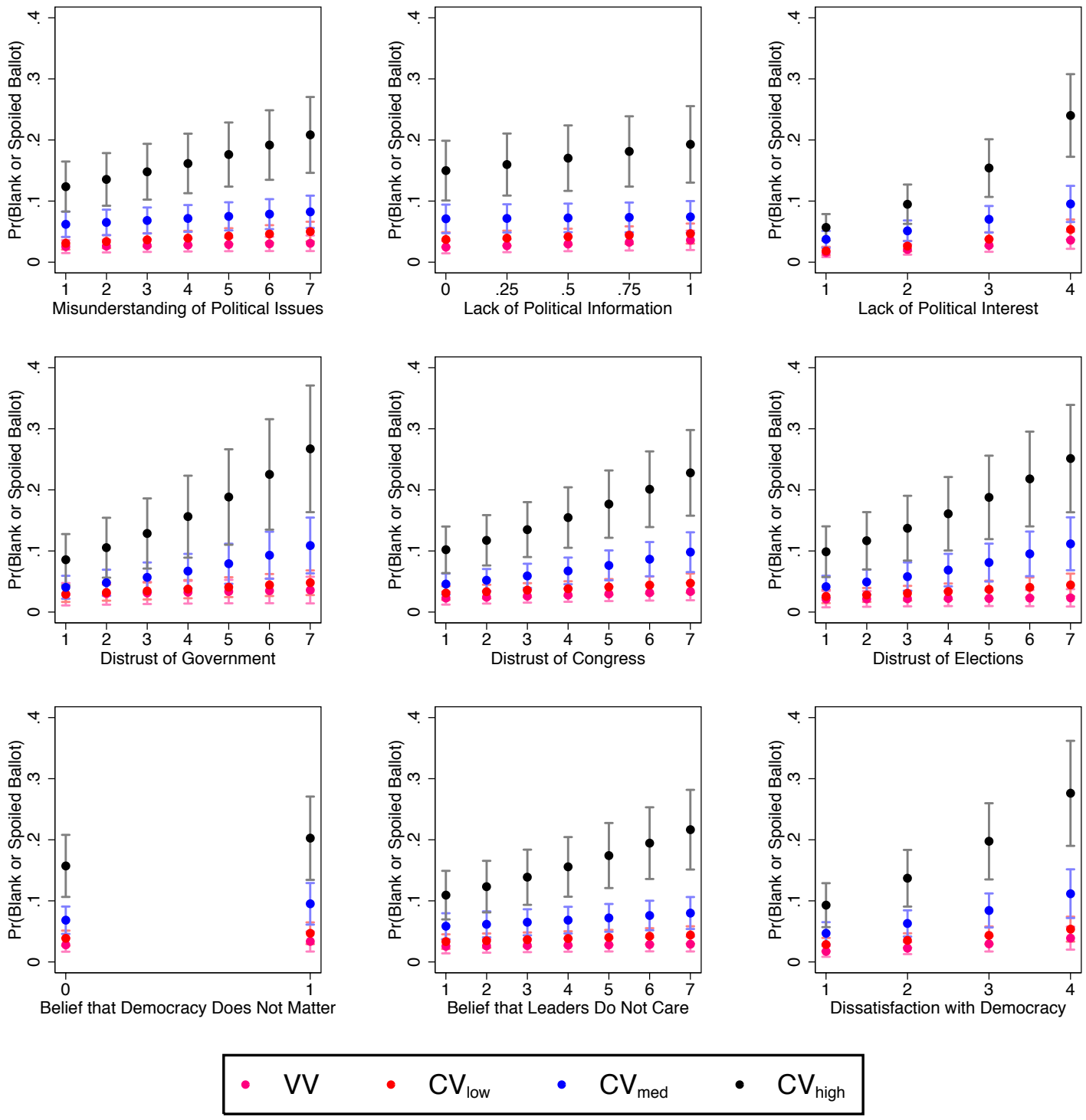

Figure A1: Conditional Effects of Voting Rules on Blank and Spoiled Balloting

Note: Vertical brackets represent 95% confidence intervals.

3. Results from Three-Level Models

In the multilevel models (Models 1-5) reported in the main text, I consider individuals (level 1) to be clustered within survey country-years (level 2), while not explicitly modeling the clustering of surveys within countries. I made this decision due to the structure of the data. There are just three survey-years included in my sample: 2008, 2010, and 2012; I use the 2004-2012 Grand Merged File of the biennial AmericasBarometer, and the 2004 and 2006 waves are dropped because the question used to create the dependent variable was not asked. Thus, with few surveys per country, and with just 21 [1] countries in my AmericasBarometer sample, the data may not be rich enough to properly model a three-level structure (cf. Arceneaux and Nickerson 2009; Stegmueller 2013).

Here I discuss and illustrate results from models in which, despite the potential inadvisability of doing so, I take into account all three levels of data. That is, I consider individuals (level 1) to be clustered within survey country-years (level 2), which themselves are considered to be clustered within countries (level 3). I estimate random intercepts across country-years and countries, and I estimate random slopes on each key individual-level variable across country-years. Corresponding to the econometric specification in the main text, these random effects are denoted ζ_{jm}, φ_m, and δ_{jm}, respectively, where *j* indexes country-years and *m* indexes countries.

The results are illustrated in Figures A2 and A3, which correspond with Figures 1 and 2 of the main text. Blank and spoiled balloting is more likely where compulsory voting is used, especially when compulsory rules are routinely enforced. And, this increase is

[1] The number of countries drops from 21 to 19 in the models that include political distrust, as the requisite questions are not asked in any survey in two countries.

attributable to the behavior of the less politically aware and interested, the politically distrusting, and those who are negatively oriented toward democracy.

The three-level approach provides estimates of the variance of the intercepts across country-years and across countries, denoted var(ζ_{jm}) and var(φ_m), respectively. Across the models, the variance of the country-year-level intercepts is greater than the variation of the country-level intercepts.[2] This further justifies the approach taken in the primary two-level models reported in Table 1 of the main text, in which individuals are considered to be clustered in country-year surveys, while the clustering of surveys within countries is not explicitly modeled.

[2] In the re-estimation of Model 1, the variance of the country-year-level intercepts is 0.30, and the variance of the country-level intercepts is 0.11. In the re-estimation of Model 2, the variance of the country-year-level intercepts is 0.27, and the variance of the country-level intercepts is 0.12. In the re-estimation of Model 3, the variance of the country-year-level intercepts is 0.87, and the variance of the country-level intercepts is 0.77. In the re-estimation of Model 4, the variance of the country-year-level intercepts is 0.17, and the variance of the country-level intercepts is 0.11. In the re-estimation of Model 5, the variance of the country-year-level intercepts is 0.35, and the variance of the country-level intercepts is <0.01.

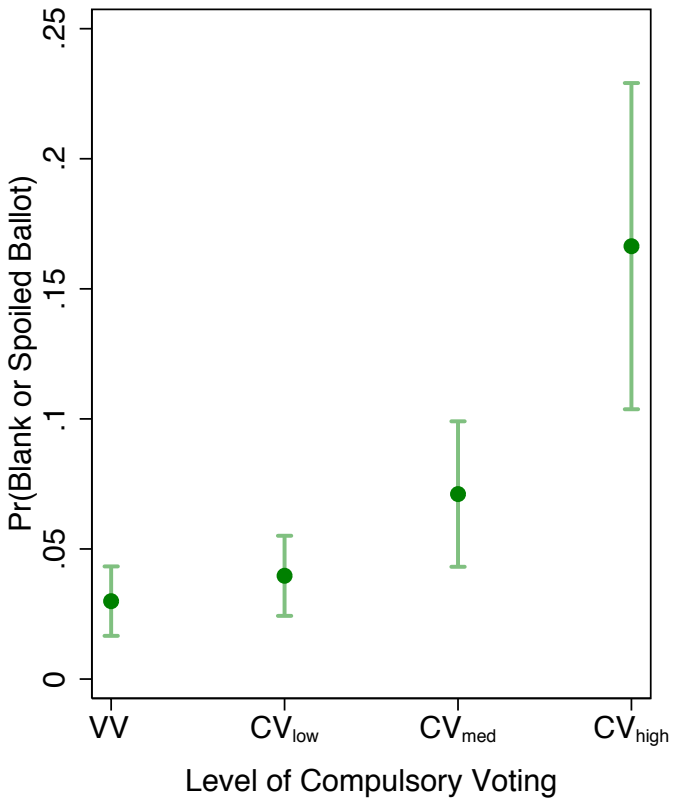

Figure A2: Blank and Spoiled Balloting in Voluntary and Compulsory Voting Systems, Three-Level Estimation

Note: Vertical brackets represent 95% confidence intervals. Results are from a re-estimation of Model 1 of Table 1 of the main text using a three-level multilevel model.

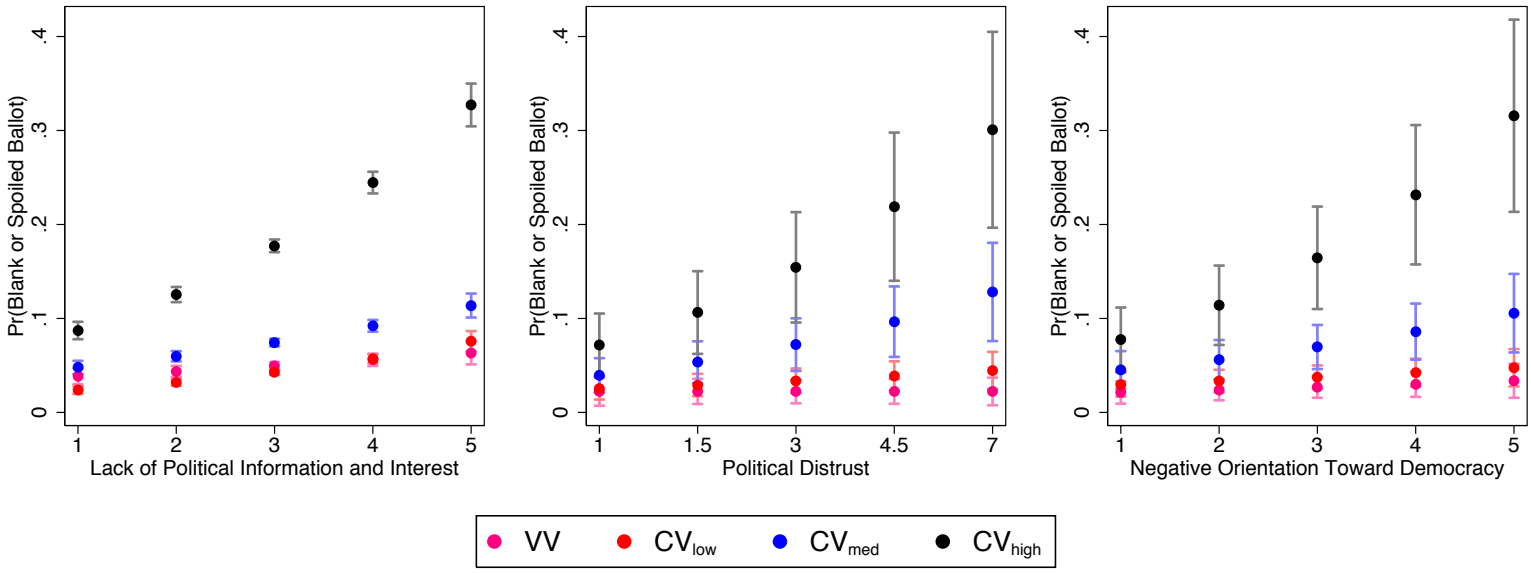

Figure A3: Conditional Effects of Voting Rules on Blank and Spoiled Balloting, Three-Level Estimation

Note: Vertical brackets represent 95% confidence intervals. Results are from re-estimations of Models 2-4 of Table 1 of the main text using a three-level multilevel model.

4. Results without Abstainers

In the theoretical argument in the main text, I put forth that politically unaware, uninterested, untrusting, and disaffected individuals in voluntary systems are less likely to cast a blank or spoiled ballot than their counterparts in compulsory systems because abstaining, a cost-free way to avoid participation or signal discontent where voting is not forced, is an easier course of action. Alternatively, many would-be abstainers in compulsory systems will turn out to the polls in order to cast a blank or spoiled ballot; for these individuals, although abstention might be their preferred behavior, it is costly in that it will often result in a punishment.

Nevertheless, a nontrivial amount of individuals do abstain in compulsory systems. In the main text, I code the dependent variable to differentiate those who would cast blank and spoiled ballots (assigned a 1) from those who would vote for a competing party *and* from those who would abstain (assigned a 0). Potentially, blank and spoiled balloting should not be considered with reference to abstention, as many of those who choose to sit elections out do so for the same reasons others choose to cast an invalid ballot. Per this reasoning, abstainers may be demographically and attitudinally similar to those who cast blank and spoiled ballots. This suggests that grouping abstainers with those who voted for a competing party, as I do in the analyses in the main text, should make it *harder* to find support for my hypotheses. Thus, though it is unlikely that my coding decision biased results in favor of my hypothesized relationships, here I re-estimate the models in the main text with abstainers excluded from the data. With this setup, those who cast blank or spoiled ballots are considered in reference to those who voted for a competing party.

I present the results of these analyses in Figures A4 and A5, which correspond with Figures 1 and 2 of the main text. As shown in Figure A4, an individual's likelihood of casting

a blank or spoiled ballot is higher where voting is compulsory, especially if compulsory rules are strict. And, as shown in Figure A5, results indicate that the effect of compulsory rules on an individual's propensity to cast a blank or spoiled ballot is moderated by his or her level of political awareness and interest, political trust, and orientations toward democracy. For those who are politically knowledgeable and interested, those who are politically trusting, and those who are positively oriented toward democracy, living in a country with compulsory voting does relatively little to boost the probability of blanking or spoiling one's ballot, relative to living in a country with voluntary voting. Alternatively, for individuals who are politically unaware and uninterested, those who are politically untrusting, and those who are negatively oriented toward democracy, living in a country with a strong compulsory voting law sharply increases the probability of casting a blank or spoiled ballot, relative to living in a country with voluntary voting.

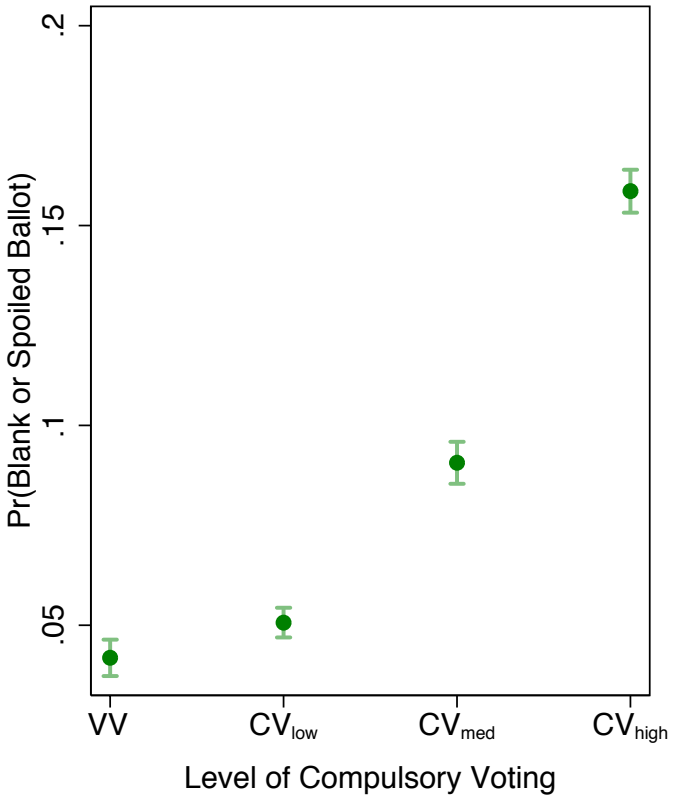

Figure A4: Blank and Spoiled Balloting in Voluntary and Compulsory Voting Systems, Abstainers Excluded

Note: Vertical brackets represent 95% confidence intervals. Results are from a re-estimation of Model 1 of Table 1 of the main text, with abstainers removed from the sample.

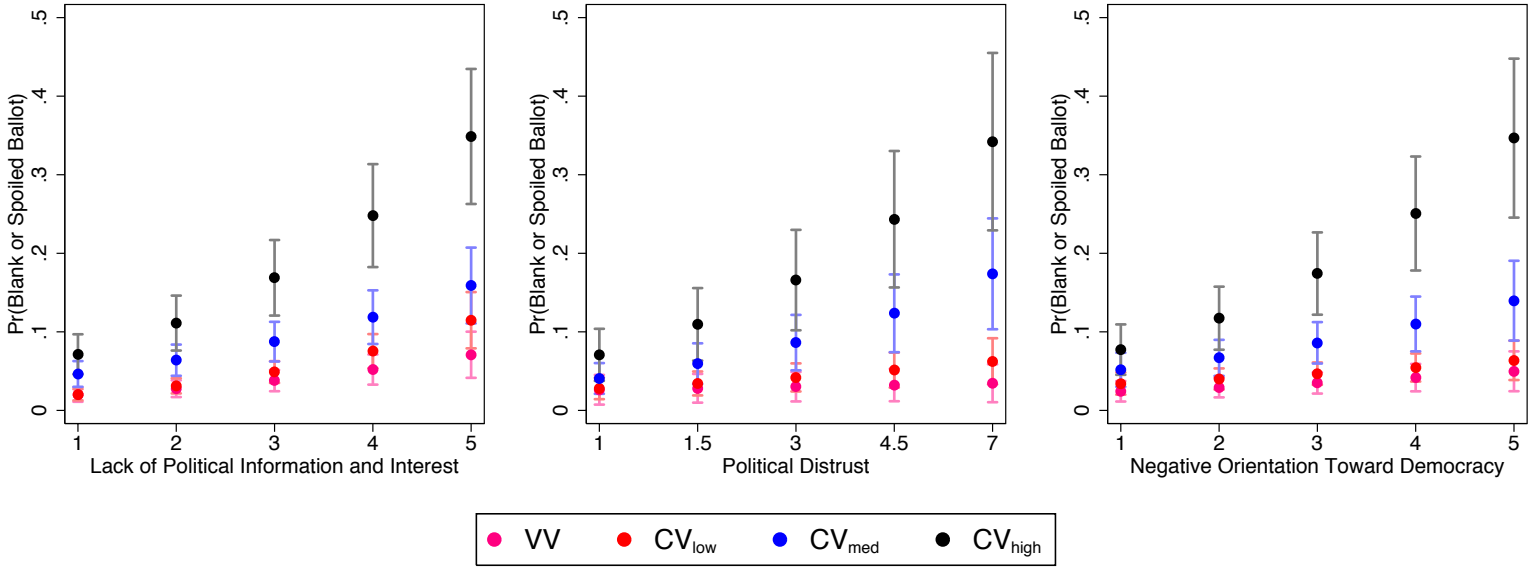

Figure A5: Conditional Effects of Voting Rules on Blank and Spoiled Balloting, Abstainers Excluded

Note: Vertical brackets represent 95% confidence intervals. Results are from re-estimations of Models 2-4 of Table 1 of the main text, with abstainers removed from the sample.

5. Results from Multinomial Models

In the main text, the dependent variable is a dichotomous indicator for whether one intends to cast a blank or spoiled ballot rather than vote for a competing party *or* abstain. In the preceding section, I discuss why this measurement approach, which lumps abstainers together with those who cast valid ballots, should not bias results in favor of my hypotheses. I also demonstrate that excluding abstainers from the sample does not alter my substantive findings.

Another option is to model abstention separate from, and at the same time as, invalid and valid balloting. Substantively, this approach should not be especially illuminating, as the conditional effects of individual-level forerunners of abstention across voluntary and compulsory systems are probed in numerous existing studies (cf. Carlin and Love 2015; Carreras and Irepoglu 2013; Chong and Olivera 2008; de Winter and Ackaert 1998; de Winter, Dumont, and Ackaert 2003; Gallego 2010; Gallego 2014; Hooghe and Pelleriaux 1998; Irwin 1974; Jaitman 2013; Maldonado 2011; Power 2009; Quintelier, Hooghe, and Marien 2011; Singh 2015; Söderlund, Wass, and Blais 2011; Verba, Nie, and Kim 1978, 6-9). Still, more fully modeling the choice set available to voters will help to ensure that my empirical findings are not an artifact of how I measure my dependent variable.

I thus re-estimated the models in the main text in a multinomial logit framework, in which the choice set includes casting a valid ballot, casting a blank or spoiled ballot, or abstaining. As in the main models, I fit a unique intercept to each country-year, and the coefficients on each key individual-level variable—those that capture disinterest and low information, distrust, and disaffection—are allowed to vary randomly across country-years. In the multinomial setting, however, these random effects are estimated for each of the three outcomes. Estimating a model with several random effects—and tens of thousands of

observations—is computationally intensive. In fact, each of the models did not fully converge. Still, the coefficients recovered from the incompletely estimated models did show the same patterns as those presented in Table 1 of the main text.

Because all of the models did not converge, I also estimated models that account for the multilevel structure of the data with by correcting the standard errors for intra-country-year correlations among the observations (see Arceneaux and Nickerson 2009). This specification is less computationally demanding than the random intercepts and slopes specification, and models converged easily.

I present the results of these analyses in Figures A6 and A7, which correspond with Figures 1 and 2 of the main text. As shown in Figure A6, an individual's likelihood of casting a blank or spoiled ballot is higher where voting is compulsory, especially if compulsory rules have "teeth." Further, as shown in Figure A7, one's political knowledge and interest, political trust, and orientations toward democracy moderate the effect of compulsory rules on his or her propensity to cast a blank or spoiled ballot. For those who are politically knowledgeable and interested, those who are politically trusting, and those who are positively oriented toward democracy, living in a country with compulsory voting does relatively little to boost the probability of blanking or spoiling one's ballot, relative to living in a country with voluntary voting. Alternatively, for individuals who are politically unaware and uninterested, those who are politically distrusting, and those who are negatively oriented toward democracy, living in a country with a strong compulsory voting law markedly increases the probability of casting an invalid ballot, relative to living in a country with voluntary voting.

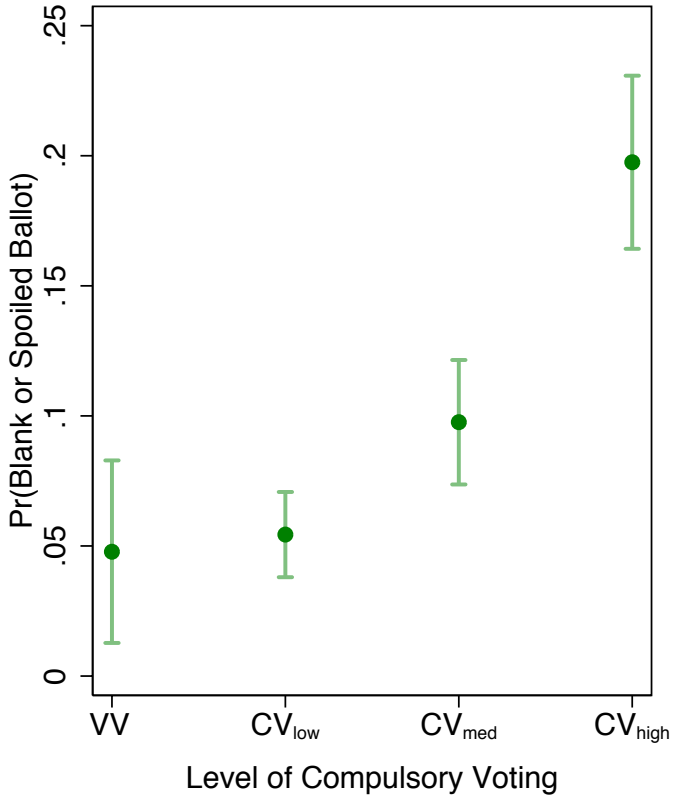

Figure A6: Blank and Spoiled Balloting in Voluntary and Compulsory Voting Systems, Multinomial Estimation

Note: Vertical brackets represent 95% confidence intervals. Results are from a re-estimation of Model 1 of Table 1 of the main text, using a multinomial model in which the dependent variable included three categories: valid voting, invalid voting, and abstention.

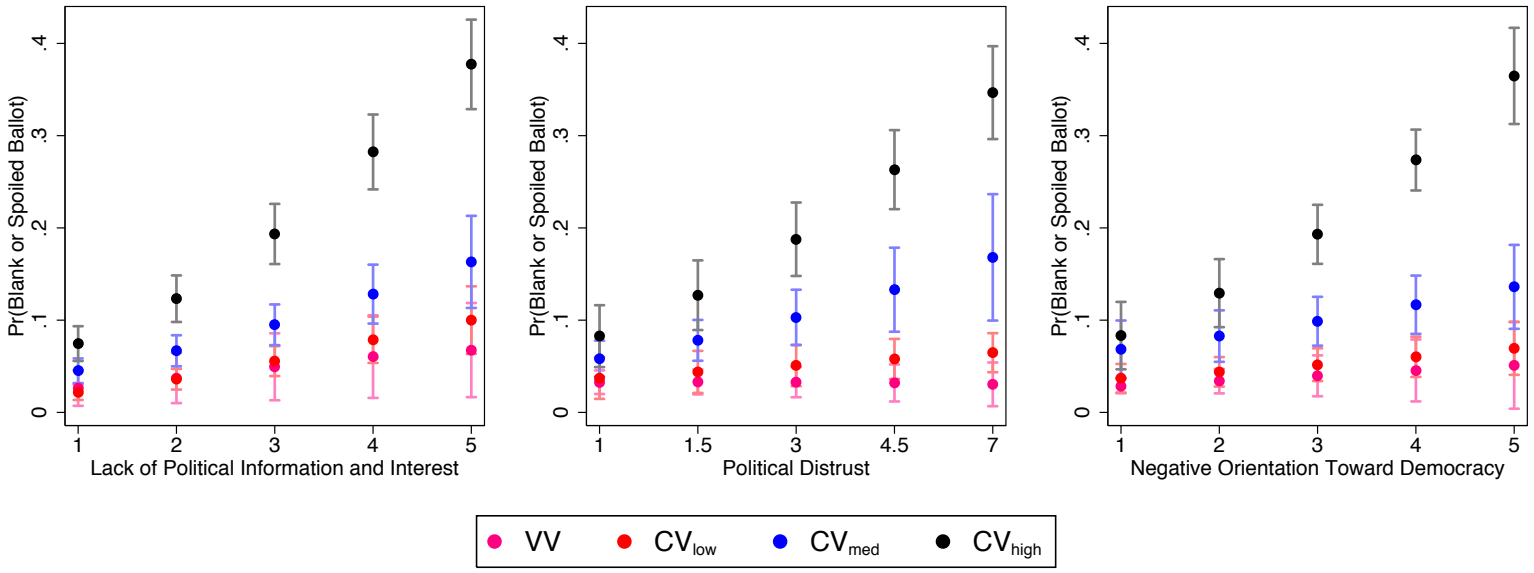

Figure A7: Conditional Effects of Voting Rules on Blank and Spoiled Balloting, Multinomial Estimation

Note: Vertical brackets represent 95% confidence intervals. Results are from re-estimations of Models 2-4 of Table 1 of the main text, using a multinomial model in which the dependent variable included three categories: valid voting, invalid voting, and abstention.

6. Issues with Survey Questions as Measures of Behavior and Results Using Recall Questions instead of Intentions Questions

Survey questions are imperfect proxies for true behavior, and I would of course prefer to use data on actual behavior in the voting booth. Fortunately, numerous studies have probed the potential consequences of the use of survey questions to gauge voting behavior by comparing them to records validated by official sources. While most of these studies focus exclusively on the use of questions that ask about reported behaviors (e.g. Abramson and Claggett 1984; Anderson and Silver 1986; Ansolabehere and Hersh 2012; Karp and Brockington 2005; Katosh and Traugott 1981; Sigelman 1982; Traugott and Katosh 1979), a smaller body of work considers questions that probe intended behaviors, which I make use of in the creation of the dependent variable used in the main text. Such studies find that nearly all of those who claim they will not vote do actually abstain (Achen and Blais 2016, 197; Granberg and Holmberg 1991, 453; Silver, Anderson, and Abramson 1986, 616). This suggests that those who claim an intention to cast an invalid ballot—like abstention, an antisocial behavior—are also likely to faithfully carry out their intentions in the voting booth.

Further, Achen and Blais (2016) find qualitatively identical relationships when regressing intended, reported, and validated indicators of voting on a series of independent variables, and they conclude that, "researchers will rarely be grossly misled by using any one of these three sources." Still, they also note that the use of intentions may "inflate the actual power and impact of explanatory factors" (206). Thus, because it is possible that the use of vote intentions in the measurement of my dependent variable could bias coefficient estimates away from zero, I probe the extent to which my findings may be an artifact of measurement error. I do so in two ways.

First, I compare intended invalid balloting rates with official reports of invalid balloting. I gathered official invalid voting rates from the Institute for Democracy and

Electoral Assistance.[3] The AmericasBarometer is not an election survey, meaning its survey years only sporadically match up with election years. I thus compared official invalid voting rates to mean reported invalid voting intentions from the AmericasBarometer in surveys in my sample that took place in election years.

This comparison indicated that, across countries, individuals in the sample *over*report their intention to cast an invalid vote by an average of 2.21 percentage points, meaning it is unlikely that social desirability skewed responses. Further, the correlation between the official and reported invalid voting rates is 0.94, which suggests that individuals in countries with higher official rates of invalid balloting are indeed more likely to express an intention to cast a blank or spoiled ballot. I also calculated official invalid voting rates averaged over each election conducted during the time frame under consideration, and I compared these to intended invalid voting rates in the countries in my sample averaged over the included surveys. With this less direct comparison, individuals, on average, report an intended invalid voting rate 5.77 percentage points higher than the official rate, and the correlation between the mean official rate and the mean reported rate is 0.42. Thus, responses are not likely skewed by social desirability bias; individuals living in countries with higher official invalid balloting rates are indeed more likely to express an intention to cast a blank or spoiled ballot.

Second, I use recalled votes in place of intended votes in the creation of my dependent variable. In the main text, the dependent variable is a dichotomous indicator for whether one intends to cast a blank or spoiled ballot. Here, instead of using a question that asks how an individual would vote in a forthcoming election, I use a question that asks how he or she voted in a previous election. Because the AmericasBarometer is not an election study, the amount of time since the most recent election varies substantially across surveys.

[3] Available at: http://www.idea.int/vt/

The question wording is: "Who did you vote for in the [most recent national] elections?

- Left the ballot blank or spoiled
- [list of names of candidates or parties]"

I assigned individuals a 1 if they selected the first option and 0 if they named a candidate or party for which they voted or reported abstaining in a previous question.

Results are displayed in Figures A8 and A9, which correspond with Figures 1 and 2 of the main text. Reassuringly, the patterns in the figure are quite similar to those reported in the main text. As shown in Figure A8, an individual's likelihood of casting a blank or spoiled ballot is higher where voting is compulsory, especially if compulsory rules are strict. And, as shown in Figure A9, political ignorance and disinterest, political distrust, and negative orientations toward democracy drive the relationship between compulsory voting and blank and spoiled balloting, and this pattern is realized most strongly where compulsory rules are sanctioned and enforced. This correspondence in results echoes the findings of previous studies that show intended and recalled voting behaviors to be strongly associated and to have similar correlates (cf. Blais, Young, and Lapp 2000, 199; Duch and Stevenson 2008, 45, 109-111; Glaser 1958; Granberg and Holmberg 1990a; Granberg and Holmberg 1990b; Quintelier and Blais 2016).

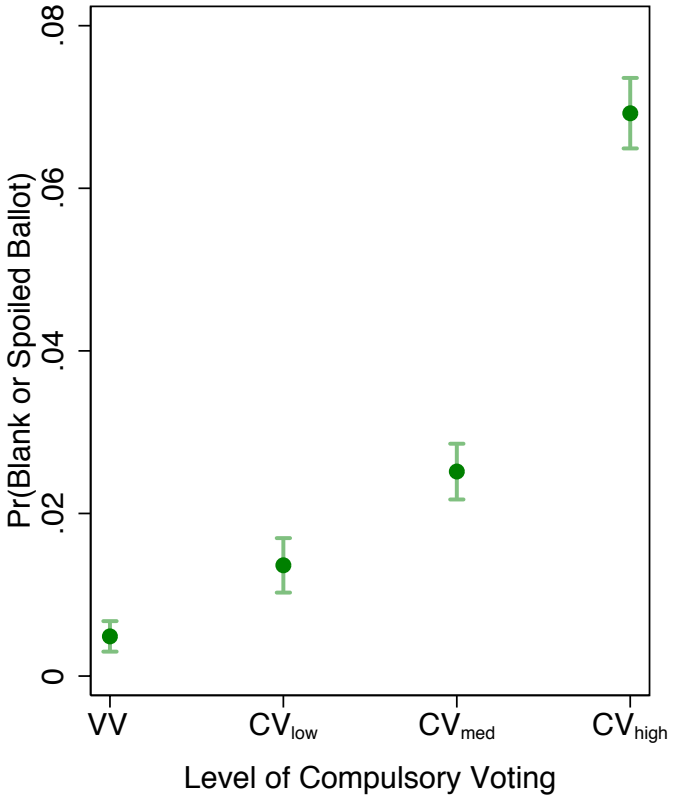

Figure A8: Blank and Spoiled Balloting in Voluntary and Compulsory Voting Systems, Recalled Invalid Balloting

Note: Vertical brackets represent 95% confidence intervals. Results are from a re-estimation of Model 1 of Table 1 of the main text, with recalled invalid balloting used in place of intended invalid balloting.

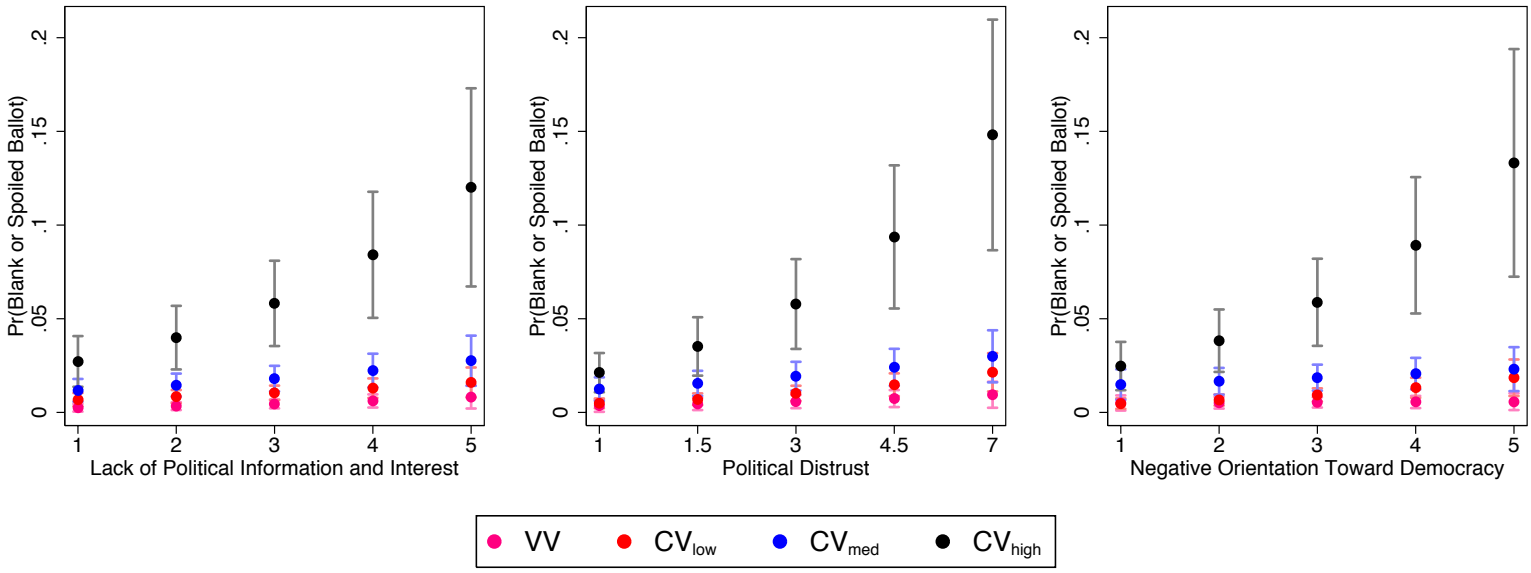

Figure A9: Conditional Effects of Voting Rules on Blank and Spoiled Balloting, Recalled Invalid Balloting

Note: Vertical brackets represent 95% confidence intervals. Results are from re-estimations of Models 2-4 of Table 1 of the main text, with recalled invalid balloting used in place of intended invalid balloting.

7. Results with Additional Controls for Ideology and Urban/Rural

There are individual-level factors that may modify the impact of compulsory voting on invalid balloting beyond those that I identify in my hypotheses. In the main text, I control for age and education. Here, I present the results of models that include additional controls for political ideology and whether one lives in an urban or rural area. (Both variables are summarized in Table A2.) Also, to further test the robustness of my model specifications, I allow the effects of all individual-level control variables to vary both randomly and deterministically as a function of compulsory voting. In the models presented in the main text, the effects of the control variables did not vary over countries or voting rules.

Results show that the effects of the control variables do not vary systematically with the voting rule. Further, my original results are robust to these specifications: as shown in Figure A10, which corresponds with Figure 2 of the main text, for those who are politically knowledgeable and interested, those who are politically trusting, and those who are positively oriented toward democracy, living in a country with compulsory voting does relatively little to boost the probability of blanking or spoiling one's ballot, relative to living in a country with voluntary voting. Alternatively, for individuals who are politically unaware and uninterested, those who are politically untrusting, and those who are negatively oriented toward democracy, living in a country with a strong compulsory voting law sharply increases the probability of casting a blank or spoiled ballot, relative to living in a country with voluntary voting.

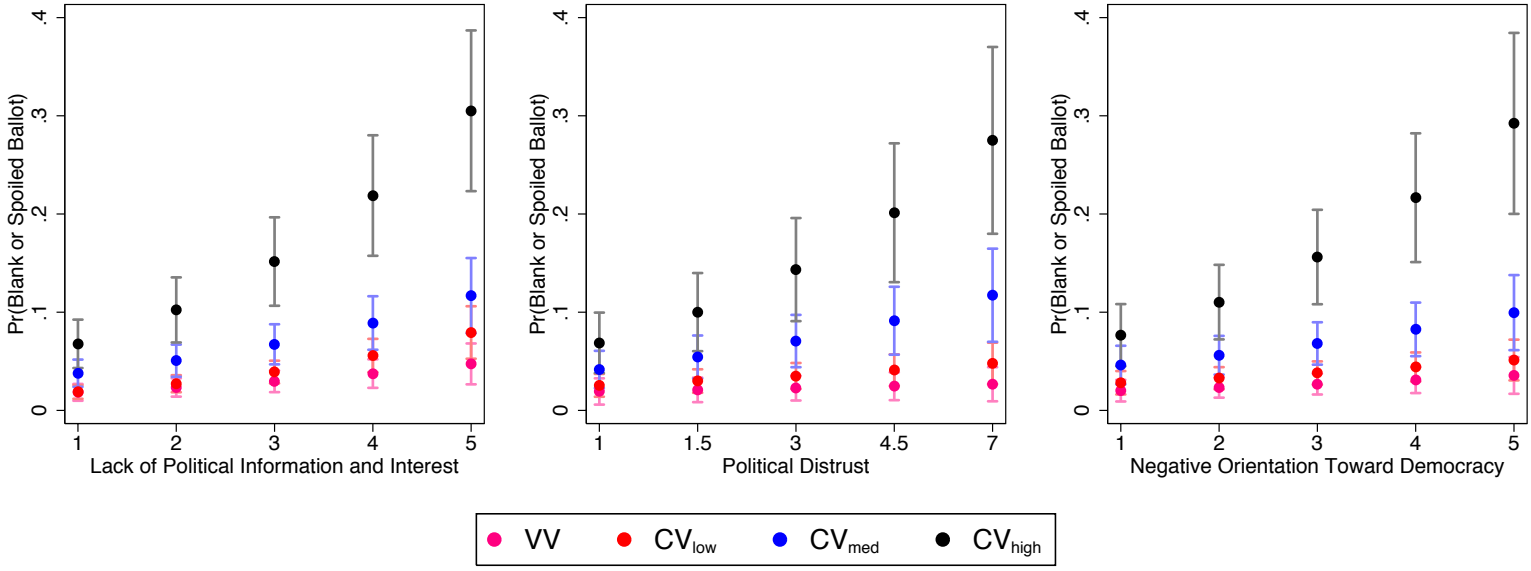

Figure A10: Conditional Effects of Voting Rules on Blank and Spoiled Balloting, with Additional Controls and Random Slopes on all Individual-Level Variables

Note: Vertical brackets represent 95% confidence intervals. Results are from re-estimations of Models 2-4 of Table 1 of the main text with additional controls for political ideology and whether one lives in an urban or rural area. Models also include random slopes on all individual-level variables, and each individual-level variable is interacted with each category of compulsory voting.

8. Results without Ecuador

Following Fornos, Power, and Garand (2004), I code Bolivia, Chile, Ecuador, Peru, and Uruguay as having the strictest level of compulsory voting (CV_{high} in my classification; see Table A1). To get an idea of the capacity of each country to enforce these rules, I gathered official turnout rates, expressed as a percentage of registered voters, in national elections since (re-)democratization[4] using the Institute for Democracy and Electoral Assistance database[5] (excluding Chile's most recent national election, which was held under voluntary rules). The average turnout rates in Bolivia, Chile, Ecuador, Peru, and Uruguay are 79.72%, 89.24%, 69.73%, 83.93%, and 90.16%, respectively. Ecuador clearly has lower turnout than the others, and, as such, I re-estimate my primary models with individuals living in Ecuador excluded from the sample. Reassuringly, my results are robust to this exclusion: as shown in Figure A11, which corresponds with Figure 2 of the main text, political ignorance and disinterest, political distrust, and negative orientations toward democracy drive the relationship between compulsory voting and blank and spoiled balloting, and this pattern is realized most strongly where compulsory rules are sanctioned and enforced.

[4] Information on democratization was obtained from the Polity IV Index, which is available at http://www.systemicpeace.org.
[5] Available at: http://www.idea.int/vt/

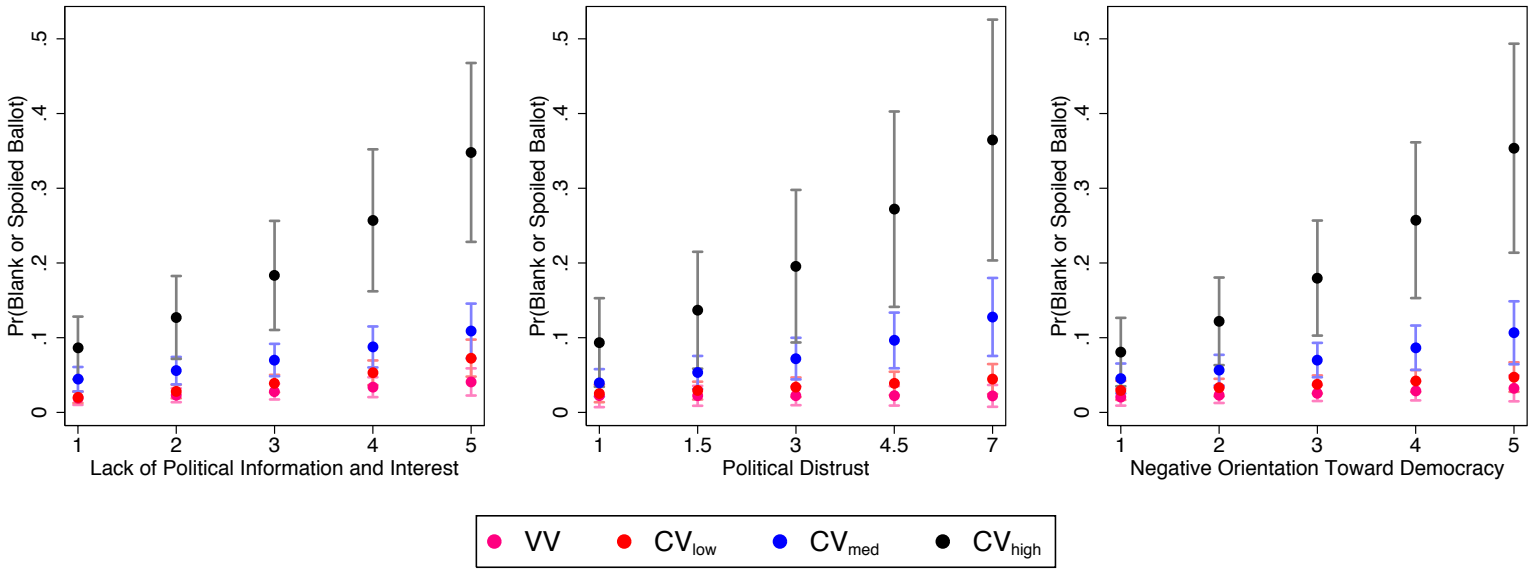

Figure A11: Conditional Effects of Voting Rules on Blank and Spoiled Balloting, with Ecuador Excluded

Note: Vertical brackets represent 95% confidence intervals. Results are from re-estimations of Models 2-4 of Table 1 of the main text with individuals living in Ecuador excluded.

9. Results with Education Measured Ordinally

In the primary models, I measure education dichotomously. To facilitate cross-country comparison of diverse education systems, individuals with a university education are assigned a 1, and others are assigned a 0. Still, despite increased comparability, this coding may be problematic in that relatively few Latin Americans participate in higher education.

As a respondent's level of education is a key potential confounder in the link between compulsory voting and invalid balloting, I thus re-estimate the primary models in the main text here, instead coding education ordinally. The ordinal education scales asked across the AmericasBarometer countries are not constant, but they range from a low of partial elementary education to a high of post-graduate education. Because the numerical range of this scale varies across countries and within countries over survey-years, I constrain it to vary from 0 to 10 within each country-year.

To examine the sensitivity of the models to the measurement of education, in Table A3, I present numerical results of the re-estimations of Models 1-5 of the main text. Results are remarkably similar to those in the main text. As shown in Model A1, where voting is compulsory and abstention may be penalized, blank and spoiled ballots are more prevalent. Further, Models A2-A4 demonstrate that the effect of compulsory rules on an individual's propensity to cast a blank or spoiled ballot tends to be stronger among the politically unaware and uninterested, the politically distrusting, and those with negative orientations toward democracy, especially where compulsory voting laws are strictly enforced. Finally, like in the main text, Model A5 shows that, when the political awareness and interest, political trust, and orientations toward democracy scales are entered into the model simultaneously, only political distrust appears to significantly moderate the impact of compulsory voting on blank and spoiled balloting. As for the ordinal education variable, like

its binary counterpart in the main models, its coefficient is not statistically different form zero in any equation but Model A2, in which it is positively and significantly related to blank and spoiled balloting.

Table A3: Compulsory Voting, Blank and Spoiled Balloting, and Individual-Level Characteristics, Education Measured Ordinally

Conditioning Variable in Model	-	Lack of Info. and Interest	Political Distrust	Neg. Orient. Toward Dem.	All Three
Model	**Model A1**	**Model A2**	**Model A3**	**Model A4**	**Model A5**
Lack of Information and Interest		0.206*			0.213*
		(0.066)			(0.108)
Political Distrust			-0.0004		-0.005
			(0.062)		(0.068)
Negatively Oriented Toward Democracy				0.119	0.007
				(0.093)	(0.120)
Compulsory Voting					
CV_{low}	0.268*	0.386	0.472	0.346	0.540
	(0.066)	(0.271)	(0.379)	(0.286)	(0.363)
CV_{med}	1.112*	0.758*	1.174*	0.841*	0.948*
	(0.066)	(0.280)	(0.374)	(0.294)	(0.381)
CV_{high}	1.646*	1.773*	2.139*	1.918*	2.254*
	(0.060)	(0.302)	(0.430)	(0.317)	(0.420)
Interactions with Compulsory Voting					
CV_{low} × Lack of Information and Interest		0.142			0.136
		(0.083)			(0.129)
CV_{med} × Lack of Information and Interest		0.049			0.008
		(0.081)			(0.123)
CV_{high} × Lack of Information and Interest		0.249*			0.137
		(0.077)			(0.120)
CV_{low} × Political Distrust			0.099		0.071
			(0.074)		(0.081)
CV_{med} × Political Distrust			0.213*		0.204*
			(0.072)		(0.079)
CV_{high} × Political Distrust			0.286*		0.227*
			(0.072)		(0.077)
CV_{low} × Negatively Oriented Toward Democracy				0.005	-0.021
				(0.117)	(0.142)
CV_{med} × Negatively Oriented Toward Democracy				0.109	-0.037
				(0.116)	(0.138)
CV_{high} × Negatively Oriented Toward Democracy				0.307*	0.126
				(0.114)	(0.135)

Table A3 Continued on Next Page

Table A3 Continued

Controls					
Age	-0.114*	-0.098*	-0.115*	-0.122*	-0.102*
	(0.010)	(0.010)	(0.013)	(0.012)	(0.014)
Education (ordinal)	0.001	0.032*	-0.007	-0.012	0.015
	(0.006)	(0.006)	(0.008)	(0.007)	(0.009)
Economic Development	-0.021*	0.041	0.032	0.049	0.047
	(0.007)	(0.032)	(0.041)	(0.033)	(0.041)
Democratic Development	-0.047*	-0.063	-0.005	-0.098	0.023
	(0.012)	(0.067)	(0.134)	(0.073)	(0.129)
Corruption	-0.067*	-0.034	0.093	-0.063	0.177
	(0.019)	(0.111)	(0.193)	(0.122)	(0.192)
Country-Year Mean of Lack of Information and Interest		1.699*			1.203
		(0.628)			(0.973)
Country-Year Mean of Political Distrust			-0.022		-0.794
			(0.256)		(0.511)
Country-Year Mean of Neg. Orient. Toward Democracy				0.790	1.447
				(0.517)	(1.275)
Constant	-2.018*	-7.680*	-4.056	-4.457*	-9.254*
	(0.216)	(2.041)	(2.076)	(1.664)	(3.363)
$var(\zeta_j)$	0.606	0.352	0.396	0.384	0.351
$var(\delta_{j,\text{ Lack of Info. and Interest}})$		0.013			0.012
$var(\delta_{j,\text{ Political Distrust}})$			0.008		0.007
$var(\delta_{j,\text{ Neg. Orient. Toward Dem.}})$				0.037	0.018
Individuals	76232	72352	47625	56717	41942
Country-Years	49	49	32	49	32
AIC	40872.52	38658.09	25732.51	30187.93	22566.97
Prob > χ^2	<0.001	<0.001	<0.001	<0.001	<0.001

Note: Dependent variable is intended blank or spoiled balloting. Results are from multilevel logistic regressions. Standard errors in parentheses. *Significant at $p<.05$ (two-sided)

10. Results with Multiply Imputed Data

In the primary models, I delete observations that are missing data on any included variable listwise. This discards information and will introduce bias if the dependent variable predicts missingness on an independent variable (Allison 2002; King et al. 2001). Because responses to the survey question used to construct my dependent variable, which asks individuals whether they intend to cast an invalid ballot, might correlate with independent variables such as age and political interest, here I re-estimate the primary multilevel models from the main text (Models 1-5) with missing responses to survey questions multiply imputed.

I use fully conditional multiple imputation (Buuren, Boshuizen, and Knook 1999; Raghunathan et al. 2001), employing logistic regression to impute missing data on binary variables and linear regression for continuous variables. I impute the data 20 times and re-estimate my primary multilevel models on each of the 20 new data sets. To pool parameter estimates across data sets, I use Rubin's (1987) rules for combination.

I conduct separate multiple imputations for each country-year survey. Models estimated using data from the same country-years thus have an equal number of observations. Because 17 of the country-year surveys in my sample did not ask the questions needed to create the Political Distrust scale, the models with political distrust include 32 country-years, while the models without it have 49.

Results, which are displayed in Models A6-A10 of Table A4, mirror those of the multilevel models in the main text. As shown in Model A6, where voting is compulsory and abstention may be penalized, blank and spoiled ballots are more common than in voluntary systems or those with weak compulsory rules. Additionally, Models A7-A9 demonstrate that the effect of compulsory rules on an individual's propensity to cast a blank or spoiled ballot becomes stronger among the politically unaware and uninterested, the politically distrusting,

and those with negative orientations toward democracy, especially where compulsory voting laws are strong. Finally, like in the main text, Model A10 shows that, when the political awareness and interest, political trust, and orientations toward democracy scales are entered into the model simultaneously, only political distrust appears to significantly heighten the link between blank and spoiled balloting and moderate and strong compulsory rules.

Table A4: Compulsory Voting, Blank and Spoiled Balloting, and Individual-Level Characteristics, Multiply Imputed Data

Conditioning Variable in Model	-	Lack of Info. and Interest	Political Distrust	Neg. Orient. Toward Dem.	All Three
Model	**Model A6**	**Model A7**	**Model A8**	**Model A9**	**Model A10**
Lack of Information and Interest		0.194*			0.202*
		(0.064)			(0.097)
Political Distrust			-0.003		-0.030
			(0.063)		(0.063)
Negatively Oriented Toward Democracy				0.123	-0.011
				(0.105)	(0.126)
Compulsory Voting					
CV_{low}	0.212	0.355	0.479	0.361	0.497
	(0.195)	(0.264)	(0.367)	(0.278)	(0.349)
CV_{med}	0.913*	0.731*	1.147*	0.795*	0.942*
	(0.201)	(0.274)	(0.362)	(0.287)	(0.365)
CV_{high}	1.618*	1.784*	2.172*	1.936*	2.278*
	(0.209)	(0.295)	(0.417)	(0.310)	(0.404)
Interactions with Compulsory Voting					
CV_{low} × Lack of Information and Interest		0.133			0.078
		(0.081)			(0.114)
CV_{med} × Lack of Information and Interest		0.036			-0.022
		(0.078)			(0.108)
CV_{high} × Lack of Information and Interest		0.234*			0.118
		(0.076)			(0.107)
CV_{low} × Political Distrust			0.103		0.098
			(0.076)		(0.075)
CV_{med} × Political Distrust			0.212*		0.235*
			(0.074)		(0.073)
CV_{high} × Political Distrust			0.285*		0.239*
			(0.074)		(0.072)
CV_{low} × Negatively Oriented Toward Democracy				0.006	0.022
				(0.129)	(0.147)
CV_{med} × Negatively Oriented Toward Democracy				0.107	-0.036
				(0.135)	(0.148)
CV_{high} × Negatively Oriented Toward Democracy				0.303*	0.151
				(0.132)	(0.145)

Table A4 Continued on Next Page

Table A4 Continued

Controls					
Age	-0.114*	-0.116*	-0.109*	-0.113*	-0.112*
	(0.009)	(0.009)	(0.011)	(0.009)	(0.011)
College	-0.074	0.086	-0.097	-0.102*	0.038
	(0.046)	(0.047)	(0.055)	(0.046)	(0.056)
Economic Development	0.003	0.050	0.032	0.050	0.054
	(0.025)	(0.031)	(0.040)	(0.033)	(0.040)
Democratic Development	-0.012	-0.067	0.005	-0.095	0.048
	(0.038)	(0.065)	(0.130)	(0.071)	(0.124)
Corruption	0.020	-0.019	0.103	-0.042	0.203
	(0.081)	(0.108)	(0.187)	(0.119)	(0.185)
Country-Year Mean of Lack of Information and Interest		1.569*			0.865
		(0.614)			0.936
Country-Year Mean of Political Distrust			-0.050		-0.700
			(0.248)		0.492
Country-Year Mean of Neg. Orient. Toward Democracy				0.738	1.303
				(0.508)	1.228
Constant	-2.928*	-7.201*	-4.137*	-4.556*	-8.621*
	(0.866)	(1.994)	(2.011)	(1.631)	(3.237)
var(ζ_j)	0.548	0.336	0.372	0.374	0.572
var($\delta_{j,\text{ Lack of Info. and Interest}}$)		0.012			0.081
var($\delta_{j,\text{ Political Distrust}}$)			0.009		0.079
var($\delta_{j,\text{ Neg. Orient. Toward Dem.}}$)				0.057	0.169
Individuals	80,256	80,256	53,747	80,256	53,747
Country-Years	49	49	32	49	32
F	22.22	33.19	19.17	21.27	15.21
Prob > *F*	<0.001	<0.001	<0.001	<0.001	<0.001

Note: Dependent variable is intended blank or spoiled balloting. Results are pooled from multilevel logistic regressions estimated on 20 multiply imputed data sets. Standard errors in parentheses. *Significant at $p<.05$ (two-sided)

11. Further Details of the Regression Discontinuity Analyses and Placebo Tests

In the main text, I make use of compulsory voting age thresholds, which are employed in five of the countries in my sample. Specifically, Argentina, Bolivia, Brazil, and Peru make voting voluntary for individuals over the age of 70, while, in Ecuador, voting is voluntary for those over 65. These arbitrary age cutoffs, which quasi-randomly assign individuals to compulsory and voluntary voting conditions, provide a nice setting for regression discontinuity (RD) analyses.

To help ensure that any observed discontinuities are a result of the voting rule to which one is subject, it is important that nothing else that could affect blank and spoiled balloting also changes sharply at the compulsory voting cutoff ages. Fortunately for my purposes, the compulsory voting cutoffs do not correspond with the ages at which individuals become eligible for government pensions. In Argentina, the pension age is 65 for men and 60 for women. In Brazil, the pension age is also 65 for men and 60 for women, unless the individual is a rural worker, in which case the pension age is 60 for men and 55 for women. In Bolivia, the pension age was 65 for men and 60 for women, but this changed to 58 for both genders in 2011—or 55 for women with three or more children. In Ecuador the pension age is 60, but one can receive a pension at any age if he or she has contributed for 480 months. In Peru, the pension age is 55 for men, if they have worked 30 years, and 50 for women, if they have worked 20 years.

In the models shown in Figure 3 of the main text, I use a sharp RD design, which allows one to estimate the effect of a binary treatment thought to be precisely determined by the value of a predictor (in this, case age). I estimate local polynomial regressions, using a triangle kernel, among observations on both sides of the age cutoff with software written by Nichols (2007, 530-531). Bandwidth was selected with reference to the choice rule

recommended by Imbens and Kalyanaraman (2012). I double the size of the Imbens and Kalyanaraman optimal window to boost sample size near the age thresholds. Substantive results are the same when I do not double the window size. Effects are calculated as the difference in the local regression predictions of the final two observations at either side of the cutoff.

RD designs allow the predictor (in this case, age) to be associated with the outcome (in this case, blank and spoiled balloting), but make the assumption that the nature of this association is constant on either side of the cutoff value of the predictor variable. In the present case, this assumption implies that, although growing older may relate to blank and spoiled balloting (cf. Carlin 2006; McAllister and Makkai 1993; Power and Roberts 1995; Uggla 2008; Zulfikarpasic 2001), there is no reason to believe that aging one year from any particular starting value in the observed range of ages should lead to an unusually sharp change in the propensity to cast a blank or spoiled ballot—unless the one-year age increase in question is associated with the removal of the legal requirement to vote.

To investigate whether the findings reported in Figure 3 of the main text are indeed a function of crossing the compulsory voting age thresholds and not just a result of aging one year, I conduct a set of "placebo tests." I first assign the age cutoff to be ten years below the actual thresholds, and I then assign the age cutoff to be ten years above the actual thresholds. As such, for the artificially low thresholds, the placebo cutoff age is 60 in Argentina, Bolivia, Brazil, and Peru and 55 in Ecuador, and for the artificially high thresholds, the placebo cutoff age is 80 in Argentina, Bolivia, Brazil, and Peru and 75 in Ecuador.

In Figure A12, I plot the results of the RD models estimated with the artificially low placebo cutoffs. The figure illustrates that crossing the placebo thresholds does nothing to

decrease one's propensity to cast a blank or spoiled ballot. If anything, for those who are politically ignorant and disinterested, those who are politically distrusting, and those who are negatively oriented toward democracy, crossing the low placebo thresholds *increases* the likelihood of blank and spoiled balloting. In Figure A13, I plot the results of the RD models estimated with the artificially high placebo cutoffs. As the figure shows, there is no discontinuity in the likelihood of casting a blank or spoiled ballot at these thresholds for those who are politically ignorant and disinterested, those who are politically distrusting, and those who are negatively oriented toward democracy. The null results associated with the placebo cutoffs suggest that the discontinuities observed at the actual age thresholds, which are illustrated in Figure 3, are a genuine result of a shift from a compulsory voting rule to a voluntary voting rule and not a mere artifact of the aging process.

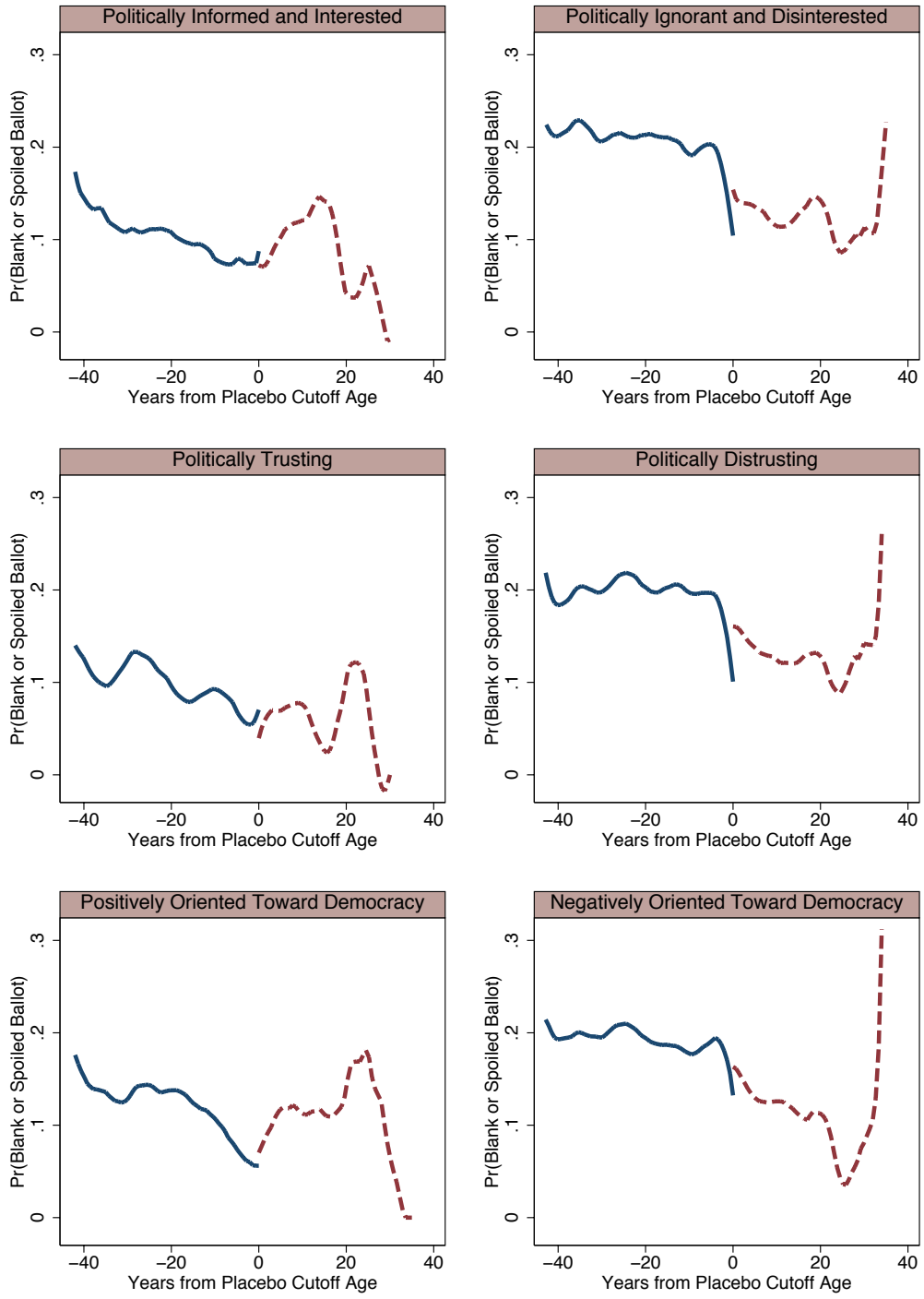

Figure A12: Blank and Spoiled Balloting Above and Below Artificially Low Placebo Age Thresholds

Note: Plots contain smoothed polynomials estimated on both side of the age cutoffs. The placebo cutoff age is 60 in Argentina, Bolivia, Brazil, and Peru and 55 in Ecuador, meaning all respondents near the cutoff are subject to compulsory voting.

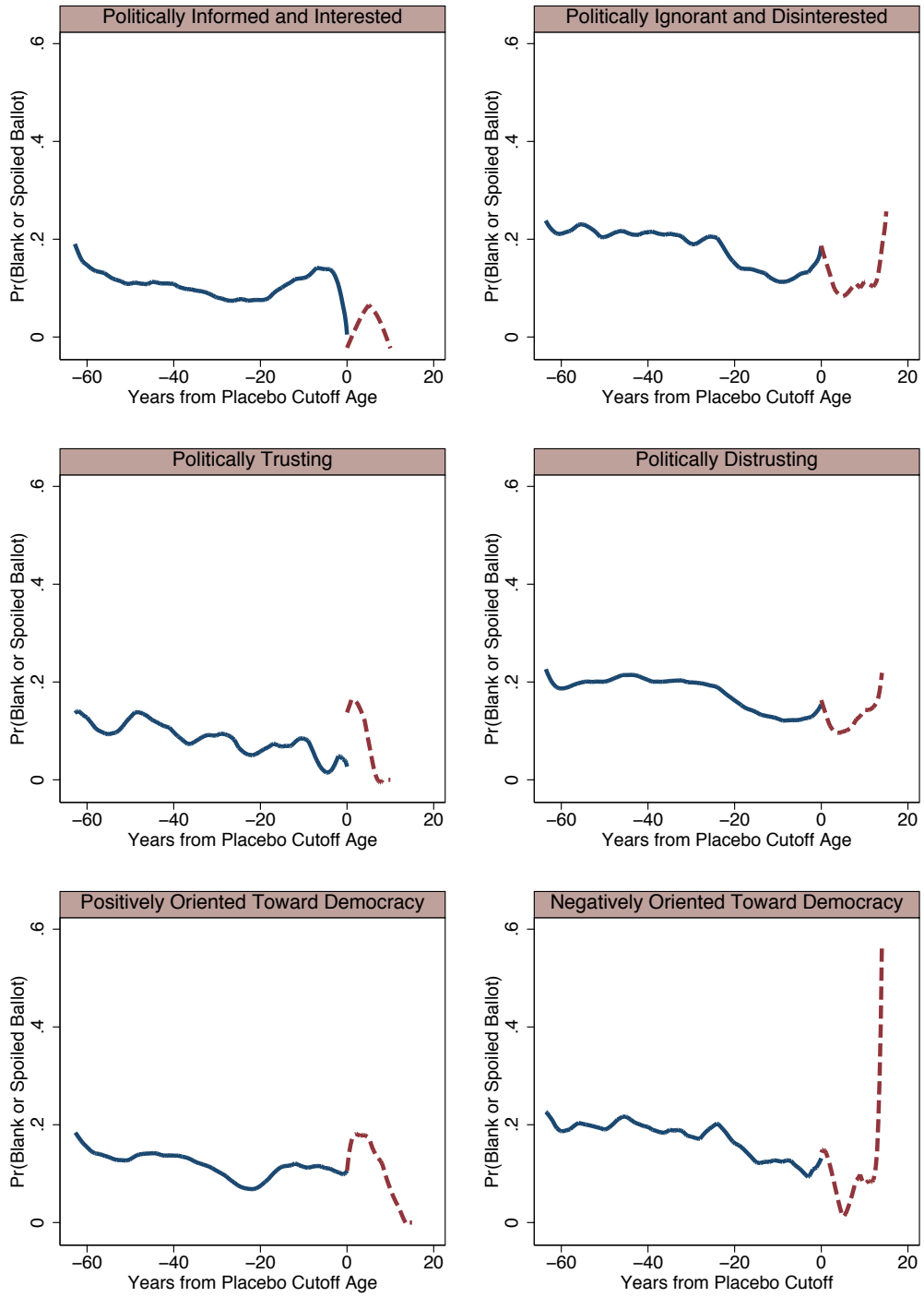

Figure A13: Blank and Spoiled Balloting Above and Below Artificially High Placebo Age Thresholds

Note: Plots contain smoothed polynomials estimated on both side of the age cutoffs. The placebo cutoff age is 80 in Argentina, Bolivia, Brazil, and Peru and 75 in Ecuador, meaning no respondents near the cutoff are subject to compulsory voting.

12. Compulsory Voting and Blank and Spoiled Balloting: Latinobarometer

In the main text, I employ data from the AmericasBarometer to gauge the relationship between compulsory voting and blank and spoiled balloting, conditional on political unawareness, disinterest, distrust, and disaffection. The AmericasBarometer is well suited for testing my expectations in that it asks several questions about democratic and political attitudes and orientations across its waves. In addition, its sample of American countries provides a useful setting in which to test my expectations, as 15 of the countries it surveys mandate voter turnout.

The Latinobarometer[6] provides an opportunity to test my expectations with a separate data source. The project has surveyed 18 Latin American countries[7] since 1995, generally conducting one survey per year in each country, and it covers each of the 15 countries included in the AmericasBarometer sample that mandate voting (see Table A1). My Latinobarometer sample includes surveys from 2000, 2007, 2008, 2009, and 2010—years in which data on blank and spoiled balloting was freely available.

The survey asks respondents whether they would cast a blank or spoiled ballot, and I use participants' responses in the creation of my dependent variable. The question is worded as follows: "If elections were held this Sunday, which party would you vote for?

- [respondent names a party]
- blank or spoiled ballot
- would not vote
- not registered."

[6] Available at: http://www.latinobarometro.org

[7] The Latinobarometer also surveys Spain. Due to missing data and its unique status as a wealthy, entrenched democracy, I do not include Spain in my sample.

Individuals are assigned a 1 if they indicated that they would cast a blank or spoiled ballot, and they are assigned a 0 otherwise. Though treating blank and spoiled ballots as distinct can be informative (e.g. Driscoll and Nelson 2014), like in the AmericasBarometer, the structure of the Latinobarometer survey question requires me to consider both types of ballots jointly.

In the main text, I employ survey questions from the AmericasBarometer to identify individuals who are politically unaware and uninterested, individuals who are untrusting of democratic actors and institutions, and individuals who are negatively oriented toward the democratic process. Five of the questions asked in the Latinobarometer are equivalent to the AmericasBarometer questions that I employ to measure the independent variables used in the scales in the main text and analyzed separately in Section 2 of this appendix. Question wording is provided in Section 13 of this appendix, and the variables are coded as follows:

- *Lack of Political Interest*: Individuals were asked to indicate, on a four-point scale, how interested they are in politics. I code the variable so that higher values mean less interest.
- *Distrust of Government*: Individuals were asked to indicate their level of trust in government on a four-point scale.
- *Distrust of Congress*: Individuals were asked to indicate their level of trust in the assembly on a four-point scale.
- *Belief that Democracy Does Not Matter*: Choosing from a list of statements about democracy, some respondents indicated that, for people like themselves, it does not matter whether the country is democratic or not. These individuals are coded 1, and others are coded 0.

- *Dissatisfaction with Democracy*: Individuals were asked, on a four-point scale, to indicate how satisfied they are with the way democracy works in their country. I code the variable so that higher values indicate less satisfaction.

Because there are too few variables to create meaningful indices of lack of political information and interest, political distrust, and negative orientations toward democracy, unlike in the main text, I analyze these variables separately rather than combining them into scales. The Latinobarometer did not ask the questions used to create these variables in each wave, meaning the number of individuals and country-year surveys in the sample varies across the models. The 18 countries surveyed by the Latinobarometer, identified in Table A1 of this appendix, are represented in each model.

To measure compulsory voting, like in the main text, I create a four-category variable to classify countries according to both the existence of a compulsory rule and the degree to which it is enforced. The four categories again are:

VV: Countries with purely voluntary voting.

CV_{low}: Countries that statutorily mandate voting but do not employ sanctions for abstention.

CV_{med}: Countries that have legal sanctions for abstention but do not generally enforce them in practice.

CV_{high}: Countries that mandate turnout and enforce sanctions in practice.[8]

[8] In Argentina, Bolivia, Brazil, and Peru, voting is not compulsory for individuals over 70 years of age. In Ecuador, the cutoff age is 65. Further, individuals in Argentina, Brazil, and Ecuador aged 16 and 17 are enfranchised but not compelled to vote. Individuals in these age groups in these countries are thus excluded from the analyses. (The exclusions for 16 and 17 year-olds did not become law in Argentina until 2012 or in Ecuador until 2009.) Further, in Bolivia, mandatory voting begins at age 21, unless an individual is married, in which case the relevant age is 18. Bolivians aged 18-20 were excluded from the analyses. These exclusions have no effect on substantive conclusions.

Information on compulsory voting laws is again from Payne et al. (2006) and the Institute for Democracy and Electoral Assistance.[9] Table A1 of this appendix indicates which countries in the Latinobarometer sample employ compulsory voting and the degree to which sanctions for abstention are enforced.

At the individual level, I control for *age* and *college* education. As in the main text, age is measured in tens of years, and individuals with a completed university education are assigned a 1, while others are assigned a 0. At the survey level, I again control for *economic development*, *democratic development*, and *corruption*.

The survey-level variables are also measured the same as in the main text. Economic development is measured as GDP per capita at the time of the survey, adjusted for purchasing power and reported in constant thousands of US dollars. Data are again from the World Bank. Democratic development is again captured with the Polity IV Index, which ranges from -10 to 10, with higher values indicating consolidated democracy. Corruption is measured using Transparency International's Corruption Perceptions Index, which ranges from 0 to 10 with higher values indicating more corruption. All variables are summarized in Table A2.

I again estimate multilevel logistic regression models, and, like in the main text, I first estimate a model that includes just the control variables and the dummy variables for the three categories of compulsory voting, excluding fully voluntary systems as the baseline category. In the subsequent models, I interact each independent variable of interest with the compulsory voting indicators. Like in the main text, I estimate random intercepts and random slopes for each independent variable of interest across country-years. I center the key independent variables to have a mean of zero, and I transform these variables back to

[9] Available at: http://www.idea.int/vt/

their original scales in the figures. I also control for the country-year-specific means of each key individual-level variable (before centering) to account for possible correlation between these variables and the random effects.

Figures A14 and A15 correspond to Figures 1 and 2 of the main text. In Figure A14, I plot the predicted probability of casting a blank or spoiled ballot across each voting system. As illustrated in the figure, all else being equal, where voting is voluntary, this probability is about 0.04, and in countries with the strongest compulsory rules, it is significantly higher, at about 0.08. Further, in countries with relatively weak compulsory voting laws, all else being equal, the likelihood of casting a blank or spoiled ballot is unaffected by the voting rule. This aligns with the predictions of Hypothesis 1 of the main text.

Hypotheses 2-4 of the main text put forth that the effect of compulsory rules on an individual's propensity to cast a blank or spoiled ballot is moderated by his or her level of political awareness and interest, the degree to which he or she is politically trusting, and his or her orientations toward democracy, especially where compulsory voting laws are strictly enforced. To further explore these predictions, using the results of the interactive models, I plot the relationship between compulsory voting and blank or spoiled balloting, as conditioned by these attributes, in Figure A15.

As demonstrated in the figure, the effect of compulsory voting on the probability of casting a blank or spoiled ballot tends to strengthen among the politically uninterested, the politically distrusting, and those who are negatively oriented toward democracy, most notably where compulsory rules are very likely to be enforced (level 3 of the compulsory voting scale). In countries with weak compulsory rules, the effect of compulsory voting on the probability of casting a blank or spoiled ballot is not moderated by individual-level predispositions and attitudes.

Hypothesis 5 of the main text puts forth that political distrust and negative attitudes toward democracy should more strongly condition the relationship between compulsory voting and blank and spoiled balloting than political ignorance and disinterest. The Latinobarometer results provide some additional support for this hypothesis. Results show that political distrust heightens the link between blank and spoiled balloting and strong compulsory rules most forcefully, negative orientations toward democracy also heighten this link, and political interest only weakly conditions the effect of compulsory rules on the probability of invalid balloting.

The overall pattern is the same across the AmericasBarometer and the Latinobarometer—blank and spoiled ballots are more common where voting is compulsory than where it is voluntary, and this difference is largely due to the behavior of individuals who are politically unaware and uninterested, individuals who are negatively oriented toward the democratic process, and, especially, individuals who are untrusting of democratic actors and institutions. Further, this dynamic is most pronounced in countries where sanctions for abstention are routinely enforced.

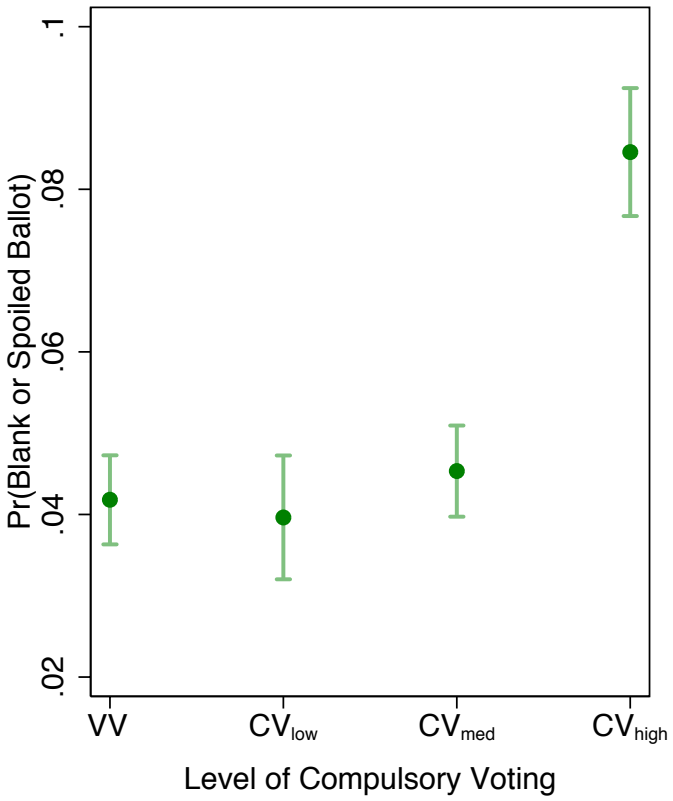

Figure A14: Blank and Spoiled Balloting in Voluntary and Compulsory Voting Systems, Latinobarometer

Note: Vertical brackets represent 95% confidence intervals. Results are from a re-estimation of Model 1 of Table 1 of the main text, using data from the Latinobarometer.

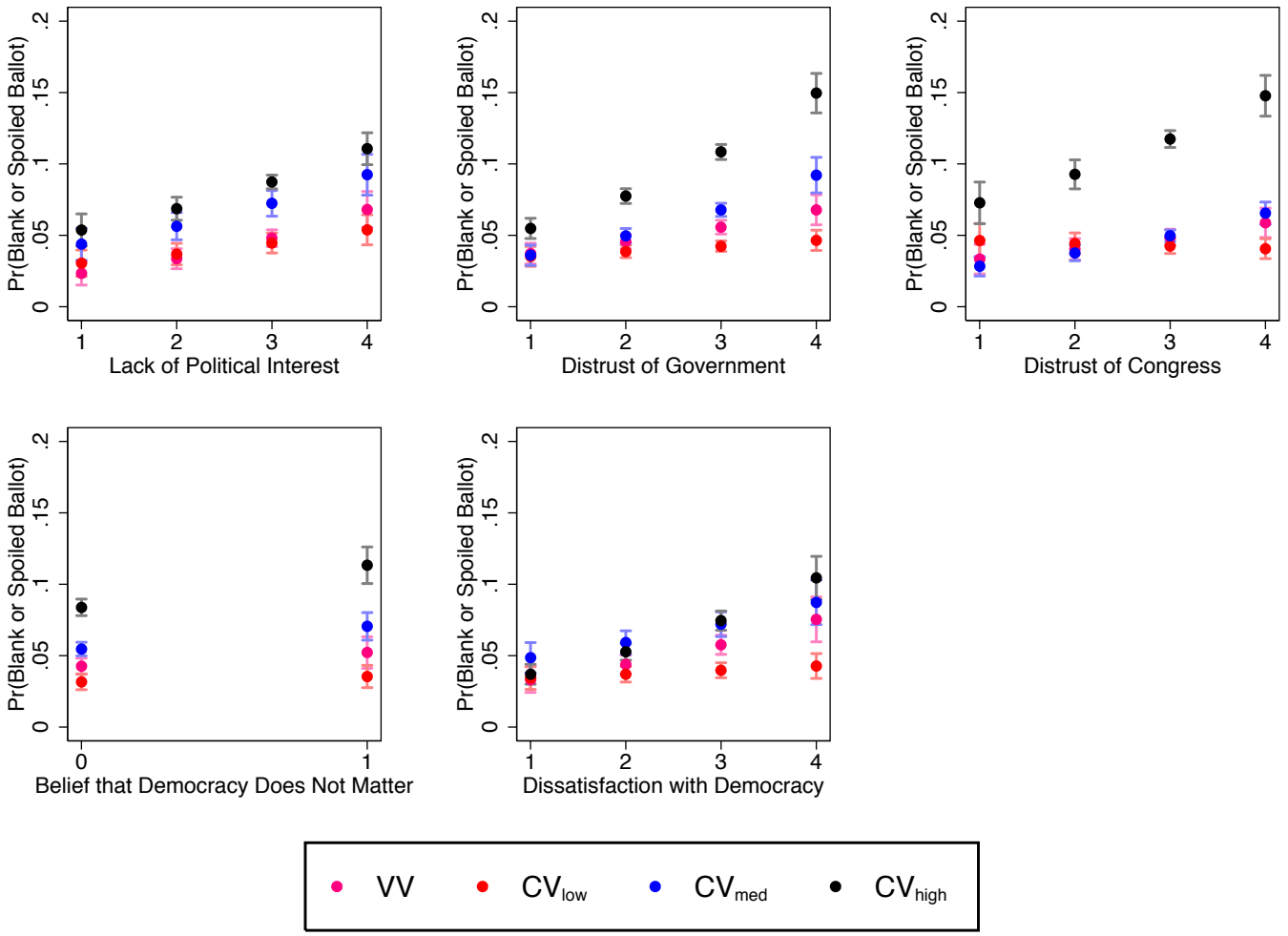

Figure A15: Conditional Effects of Voting Rules on Blank and Spoiled Balloting, Latinobarometer

Note: Vertical brackets represent 95% confidence intervals. Results are from re-estimations of models depicted in the third, fourth, fifth, seventh, and ninth panels of Figure A1 in this appendix, using data from the Latinobarometer.

13. Question Wording

Below I provide coding procedures and the wording of the questions used to construct the primary independent variables in the main text using the AmericasBarometer.

Lack of Political Information and Interest Scale

- Misunderstanding of Political Issues: "'You feel you fully understand the political issues in the country.' To what extent do you agree or disagree with this statement?" Individuals were asked to provide their responses on a seven-point scale, and I code these so that higher values indicate more misunderstanding.
- Lack of Political Information: Individuals were asked several trivia-type political questions, including naming the president of the United States, naming the president of Brazil, naming the president of congress or the assembly, identifying the number of federal subunits, and identifying the amount of years in a presidential term. The number of questions asked is inconsistent across countries. Thus, to measure the lack of political information, I use the proportion of incorrect or "don't know" responses given to the slate of trivia questions asked of each individual.
- Lack of Political Interest: "How interested are you in politics: a lot, somewhat, a little or not at all?" I assign a 1, 2, 3, and 4 to each possible response, respectively.

Political Distrust Scale

For each of the trust questions, individuals are asked to indicate their level of trust on a seven-point scale. I code responses so that higher values mean less trust.

- Distrust of Government: "To what extent do you trust the government?"
- Distrust of Congress: "To what extent do you trust Congress?"

- Distrust of Elections: "To what extent do you trust the election?"

Negative Orientations toward Democracy Scale

- Belief that Democracy Does Not Matter: "Which of the following three statements do you most agree with?
    - 'For people like me, it does not matter whether a government is democratic or undemocratic.'
    - 'Democracy is preferable to any other form of government.'
    - 'In some circumstances, an authoritarian government can be preferable to a democratic one.'"

  Respondents who selected the first option are coded 1, and those who selected the others are coded 0.
- Belief that Leaders Do Not Care: ""Those who govern the country are interested in what people like you think.' To what do you agree or disagree with this statement?" Individuals were asked to provide their responses on a seven-point scale, and I code these so that higher values indicate less belief that leaders are concerned.
- Dissatisfaction with Democracy: "In general, would you say you are very satisfied, satisfied, unsatisfied, or very unsatisfied with the way democracy works in [country]?" I assign a 1 to respondents who are very satisfied, a 2 to those who are satisfied, a 3 to those who are unsatisfied, and a 4 to those who are very unsatisfied.

In Section 12 of this appendix, I make use of questions from the Latinobarometer that align with five of the above AmericasBarometer questions. The Latinobarometer question wording and variable coding is as follows:

- Lack of Political Interest: "How interested are you in politics: very, somewhat, a little or not at all?" I assign a 1, 2, 3, and 4 to each possible response, respectively.
- Distrust of Government: "How much trust do you have in government, a lot, some, little, or none?" I assign a 1, 2, 3, and 4 to each possible response, respectively.
- Distrust of Congress: "How much trust do you have in Congress, a lot, some, little, or none?" I assign a 1, 2, 3, and 4 to each possible response, respectively.
- Belief that Democracy Does Not Matter: "Which of the following three statements do you most agree with?
    - 'For people like me, it does not matter whether a government is democratic or undemocratic.'
    - 'Democracy is preferable to any other form of government.'
    - 'In some circumstances, an authoritarian government can be preferable to a democratic one.'"

  Respondents who selected the first option are coded 1, and those who selected the others are coded 0.
- Dissatisfaction with Democracy: "In general, would you say you are very satisfied, satisfied, unsatisfied, or very unsatisfied with the way democracy works in [country]?" I assign a 1 to respondents who are very satisfied, a 2 to those who are satisfied, a 3 to those who are unsatisfied, and a 4 to those who are very unsatisfied.

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