The Causal Effect of Compulsory Voting Laws on Voter Turnout: Evidence from a Global Panel

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1. Introduction

Voter turnout is a significant indicator of democratic health. Participation rates remain low in many countries, which raises concerns about the legitimacy of the democratic system and if there is a balanced political influence. An imbalance of voters can be problematic for representation and goes against the idea that all citizens have an equal voice in democracy. Compulsory voting aims to close the participation gap by requiring all eligible citizens to vote with penalties for noncompliance. Such laws can strengthen democracy by improving equality through broader participation and representativeness.

This paper examines the causal effect of compulsory voting on voter turnout using a panel of country-year data. A difference-in-differences design is employed that compares changes in turnout before and after the adoption of compulsory voting laws, relative to countries without such laws. The results suggest that compulsory voting increases turnout by approximately ten percentage points.

2. Literature

Compulsory voting has been studied extensively as a policy aimed at increasing democratic participation. Lijphart (1997) explains how low voter turnout is a serious democratic issue because it leads to systemic inequality. Wealthier and more educated citizens vote more than poorer and less educated citizens, which gives them an unfair political influence. Democracy strives to be equal, but participation is unequal, which is the unresolved dilemma of democracy. Compulsory voting is an effective solution to this dilemma. It has benefits that reduce the influence of money and creates a cycle of engagement that keeps voters informed through the government becoming more responsive (Harvard Law Review, 2007). An empirical study done by De Luca, Rossetti, and Stoop (2018) used difference-in-differences and panel data within Austria from 1949 to 2004. They found that compulsory voting increased turnout by about 10 percentage points, and when it was abolished, turnout dropped by the same amount. These findings align with my estimate, adding credibility to my design.

Building on this, Barber and Holbein (2020) analyzed the implementation of mandatory vote-by-mail in the United States to test if decreasing voting costs affected participation and election outcomes. They found that this made more people vote, especially low-propensity voters, by removing barriers like traveling and polling places. The policy helped inclusiveness and didn't give a meaningful advantage to one political party. Hill, Hopkins, and Huber (2021) found that most changes in who wins elections come from people changing their minds, and not

new people voting. These studies show how institutions can strengthen participation without changing the balance of politics.

3. Data

This paper constructs a country-year panel dataset that combines global election data with information on the presence and timing of compulsory voting laws. The dependent variable is the voter turnout which measures the percentage of the voting age population that casts a ballot in national level elections. The main explanatory variable is a binary indicator for legal compulsory voting, coded as 1 in country-years where a compulsory voting law was in place and applied universally, and 0 otherwise.

Voter turnout data was collected from the International Institute for Democracy and Electoral Assistance (IDEA) Voter Turnout Database which compiles official election statistics across countries. This data was merged with a manually coded dataset on compulsory voting laws, constructed using official government records and historical election archives. For each country, the first year compulsory voting laws were introduced was identified along with the year it was repealed, if applicable.

For countries that expanded coverage (men → men & women), treatment timing is set to the year when it applied universally. The indicator reflects legal status only, and enforcement isn't measured. This matches an Intention-to-Treat style estimate which measures the effect of being assigned to treatment, regardless of whether the treatment was fully implemented. Since enforcement isn't measured, the estimated effect should be interpreted as the average impact of a compulsory voting law existing, which is likely lower compared to if it was actually enforced.

In a basic voting model, people vote when the benefits outweigh the costs. Compulsory voting can increase turnout by making people feel more important or socially expected and adding possible penalties for not voting. Since enforcement isn't measured, the estimated effect captures both the influence of the law itself and the social pressure it creates, not just the impact of the penalties. Turnout was flat before the law and it jumped right after the law, which means the law itself is what's making more people vote because it draws attention with parties and officials pushing harder. This shapes civic engagement and increases voter turnout.

The merged dataset includes 2,441 country-year observations covering the period 1945 to 2025. Missing observations are rare and seem to be randomly distributed across time and countries, and aren't likely to correlate systematically with compulsory voting. To make the data consistent across countries and years, the country names were standardized and territories that had missing information were removed. The turnout rate was averaged if there was more than one election that occurred in the same year. Some countries have fewer years of data, but there is still enough variation within each country to estimate reliable effects.

Table 1 shows the descriptive statistics, which summarizes the mean, standard deviation, and sample size for all variables. The average voter turnout rate across the full sample is about 71% with compulsory voting laws present in about 15% of all observations.

4. Empirical Methodology

The goal of this study is to estimate the causal effect of compulsory voting on voter turnout. A simple cross-sectional regression of turnout on compulsory voting would have bias due to systemic differences between countries like political culture, education, or democratic stability. To overcome this limitation, I look at within-country variation over time, using a difference-in-differences approach with two-way fixed effects.

Treatment varies across countries and over time based on whether a universal compulsory voting law existed in a given year. Some countries like Australia and Belgium have had compulsory voting for decades, while others, like Austria and Chile, have adopted it and then repealed it. Through this variation, it is possible to identify the causal effects by comparing outcomes before and after policy adoption, relative to countries that never adopted such laws.

4.1. Two-Way Fixed Effects Estimation

The main estimating equation is the Two-Way Fixed Effects model:

$$Turnout_{ct} = \alpha + \beta Compulsory_{ct} + \gamma_c + \delta_t + \varepsilon_{ct}$$

where:

$Turnout_{ct}$ is the voter turnout rate in country c during year t;

$Compulsory_{ct}$ is an indicator equal to 1 if compulsory voting was in effect in that country-year, and 0 otherwise;

γ_c are country fixed effects that capture all time-invariant national characteristics like geography, political culture, or quality of institutions;

δ_t are year fixed effects that capture global shocks or time trends common to all countries such as technological change or shifts in engagement norms;

ε_{ct} is the error term which is the influence of all other factors that affect turnout

The coefficient β captures the average treatment effect of introducing compulsory voting on voter turnout, and standard errors are clustered at the country level to account for autocorrelation and within-country heteroskedasticity.

4.2. Difference-in-Differences

The DiD approach is in the absence of compulsory voting, turnout in treated and untreated countries would have followed parallel trends over time, so if there is any deviation in turnout after policy adoption, it is because of the causal effect of the law. While this can't be directly tested, it can be visually evaluated using an event study that estimates trends before and after the adoption of the law.

4.3. Internal Validity

The internal validity of the research design depends on the parallel trends assumption. If there had been no compulsory voting, the countries that adopted the law and those that didn't would have seen similar ups and downs in turnout rates over time. If this is true, then any extra jump in treated countries after the law looks like a causal effect. The paper supports this assumption through an event study that shows a graph of turnout years before and after the law. The country and year fixed effects also remove each country's time invariant quirks and the global shocks that hit everyone. Also, a balance test was conducted to compare average turnout between countries that eventually adopted compulsory voting and those that never did during the pretreatment period.

A threat to internal validity is reverse causality through policy endogeneity, where the government might pass the law because turnout was failing. The event study shows no pre-decline in treated places before the law which reduces this worry. Another threat would be spillovers where a country's adoption might influence neighboring countries, but the year fixed effects control for these shocks.

There is a measurement error that makes the effect look smaller than it truly is because some countries have the law on paper but don't really enforce it. Considering all country-years with a law as treated countries makes the treatment noisy. This shrinks the estimated effect and the estimate and Intention-to-Treat effect that measures what happens when a law exists, regardless of how forcefully it is enforced. A future fix for this could be to restrict treated countries to if they actually enforced the law, which would reduce the bias. This would make the estimate a Treatment-on-Treated which is more accurate and the result would probably be larger.

Overall, the design meets the causal inference standard for quasi-experimental difference-in-differences analysis.

4.4. External Validity

The results generalize to stable democracies where countries already have strong governments, fair elections, and laws that people follow. In these places, compulsory voting likely raises turnout because people know the rules matter and it's enforced.

In fragile or less democratic countries, the government can't really enforce laws and the elections aren't truly competitive, so the effect works differently and is most likely smaller.

Studies from Austria, Belgium, and Australia show similar results where turnout increased by 10 to percentage points, so the findings of this paper probably apply to most democracies where compulsory voting is credible.

In the future, an analysis could be done on whether the size of the effect changes depending on how strictly the law is enforced, how big the penalties are, and how strongly people in that country feel a civic duty to vote.

5. Estimates

The main estimates are reported in Table 2, which show the results from the two-way fixed effects regression. The coefficient on the "Compulsory" variable is 10.18 and statistically significant, which means that on average, adopting a compulsory voting law increases voter turnout by about 10 percentage points compared to not having one. Given the average turnout rate of 71%, this effect corresponds to about a 14% relative increase in participation, which is meaningful.

5.1. Event Study

To examine how the effect of compulsory voting unfolds over time and to test the validity of the parallel trends assumption, an event study model is estimated to track changes in voter turnout before and after the law's adoption. It includes a set of event-time indicators showing each year's distance from adoption, with the year immediately before serving as the reference point. The estimated coefficients represent how turnout changes relative to that pre-adoption year, after accounting for the country and year fixed effects. Figure 1 plots these coefficients and shows that turnout remains stable in the years leading up to the law, which supports the parallel trends assumption. After adoption, turnout increases sharply and stays that way for several years, suggesting that the effect of compulsory adoption is both immediate and persistent rather than temporary.

5.2. Balancing Test

Before interpreting the estimates causally, it is important to check whether the countries that adopted compulsory voting were similar to those that did not before the law was introduced. Table 3 reports this balance test, which compares pre-treatment averages of voter turnout between "switchers" (countries that later adopted the law) and "never treated" countries. The switcher countries show a 70.3% average turnout before adoption and the never treated countries show a 70.1% average turnout before adoption, which is almost identical. This shows that the countries did not already have unusually high or low turnout rates before the law. This supports

the assumption that the timing of adoption isn't related to turnout trends, making the causal effect of the results more strong.

5.3. Robustness

To make sure the main results aren't caused by model choices or certain countries in the sample, robustness checks were done which are shown in Table 4. The first check adds country-specific time trends to allow each country to have its own underlying path in voter turnout. The estimated effect stays positive at about 6.8 percentage points, showing that the result isn't driven by pre-existing national trends. The second check is a leave-one-out test that re-estimates the model while removing one country at a time. The effect remains between 7.8 and 11.9 percentage points, which shows that not single country drives the overall result. Overall, these checks confirm that the positive effect of compulsory voting on turnout is consistent and not dependent on model design or country selection.

6. Conclusion

The paper analyzes the causal effect of compulsory voting on voter turnout using a global panel dataset and a two-way fixed effects difference-in-differences model. The results show that compulsory voting laws increase turnout by about 10 percentage points, which is very significant. These findings are consistent with earlier studies done by De Luca, Rossetti, and Stoop (2018) for Austria and Fowler (2013) for Australia, which also find a large increase in participation from compulsory voting. Together, the evidence suggests that legal voting requirements are one of the most effective ways to increase voter turnout and strengthen democratic participation across countries.

However the broader effects on democracy are more mixed. While compulsory voting clearly increases voter turnout, it does not always change who wins elections or how governments spend money. This means that higher participation doesn't automatically lead to different political or policy outcomes. Future research could look at how effects vary when the law is enforced and levels of income inequality. Overall, the analysis provides strong evidence that compulsory voting meaningfully increases voter participation, and it is an effective tool to make democracy more inclusive and representative.

7. References

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Table 1: Summary Statistics

Variable	N	Mean	Std. Dev.	Min	P25	Median	P75	Max
Voter Turnout	2428.0	71.08	16.27	2.73	60.29	72.96	83.61	102.62
Compulsory	2441.0	0.15	0.36	0.0	0.0	0.0	0.0	1.0

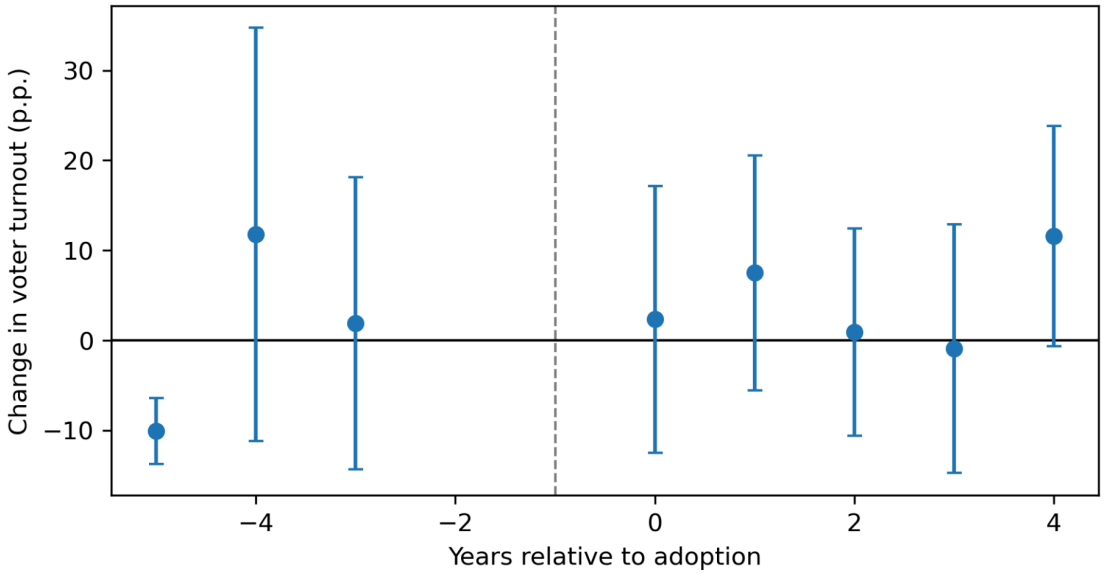
**Notes:* Country–year panel of voter turnout and compulsory-voting status. N = 2441; Countries = 202; Years = 81.*

Table 2: Effect of Compulsory Voting on Voter Turnout

Variable	Coefficient	Std. Error	t-Stat	P-Value
Intercept	49.346***	2.599	18.98	0.0
Compulsory	10.179***	3.625	2.81	0.005
Observations	2428.0	–	–	–
Countries	202.0	–	–	–
R-squared	0.673	–	–	–

**Notes:* Two-way fixed effects with country and year FE. Treatment equals 1 when a compulsory voting law was in place and applied to the full everyone in that year, regardless of enforcement intensity. Standard errors clustered by country. Stars: *** p<0.01, ** p<0.05, * p<0.10.*

Figure 1: Event-study — Effect of Compulsory Voting on Turnout



**Notes:* Coefficients from an event-study with country and year FE; SEs clustered by country. The omitted year is -1.*

Table 3: Pre-treatment Balance — Turnout

Group	N	Mean turnout (p.p.)	Std. Dev.
Pre-treatment switchers	86	70.32	16.99
Never treated	2188	70.15	16.17

**Notes:* "Switchers" are countries that later adopted compulsory voting, measured only before they passed the law. "Never-treated" are countries that never had compulsory voting during the sample period. The treatment is based on whether the law existed for everyone, not on whether it was actually enforced.*

Table 4: Robustness Checks

Specification	Estimate (p.p.)
Baseline TWFE	10.18
Add country linear trends	6.75
Leave-one-out range	7.75 to 11.88

**Notes:* All models include country and year fixed effects, with standard errors grouped by country. The treatment is based on whether a country had a compulsory voting law that applied to everyone (not on how strictly it was enforced). The "Trends" model lets each country have its own time trend, and the "Leave-one-out" test shows how the results change when one country is removed at a time.*