

Do Restrictive Voting Laws Work?



About the authors: Both authors are economists and recently retired. They began researching this topic and wrote this paper because they are greatly concerned about the status of voting rights in the U.S. For over 35 years, they led research teams in the private sector and the government that conducted studies and evaluation Federal programs.

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I. Introduction

Presidential elections in the US often have been close. In three of the past six elections, the winner's popular vote margin was less than three percent. The Electoral College amplifies small margins of victories, often making certain states pivotal. A small difference in voter turnout can swing a state from one candidate to another. (In the 2020 presidential election, Joseph Biden was elected President because he received a total of 45,000 votes in three states that he won by small margins. In the 2000 election, George W. Bush won Florida's electoral votes, and an Electoral College majority, by 537 votes.) As such, changes to the rules that govern elections could change the outcome. In many states, this prospect has made voting legislation very contentious. This conflict has intensified since the highly contested 2020 election.

Since the 1960s, most states in the US were on a path of lessening restrictions and making it easier for people to vote. Many states are still on that path. However, over the past three election cycles, many other states have proposed legislation to restrict voting. (The stated rationale usually was to prevent voting fraud.) Many of these bills have not passed or, if they did pass, the courts struck them down. In the past few years, a main legislative change to voting procedures has been the increase in the number of states that require a (government-issued) photo identification (ID) at the point of voting. However, the push continues to tighten voting procedures and make voting more difficult; that push may well be accelerating. To assess the change that has occurred, we naturally rely on historical data.

In this paper, we examine the effect various procedures have on voter participation. Specifically, we seek to determine (1) the degree to which states have adopted restrictive registration and voting policies and (2) whether these new procedures have had their expected effects on voting turnout.¹

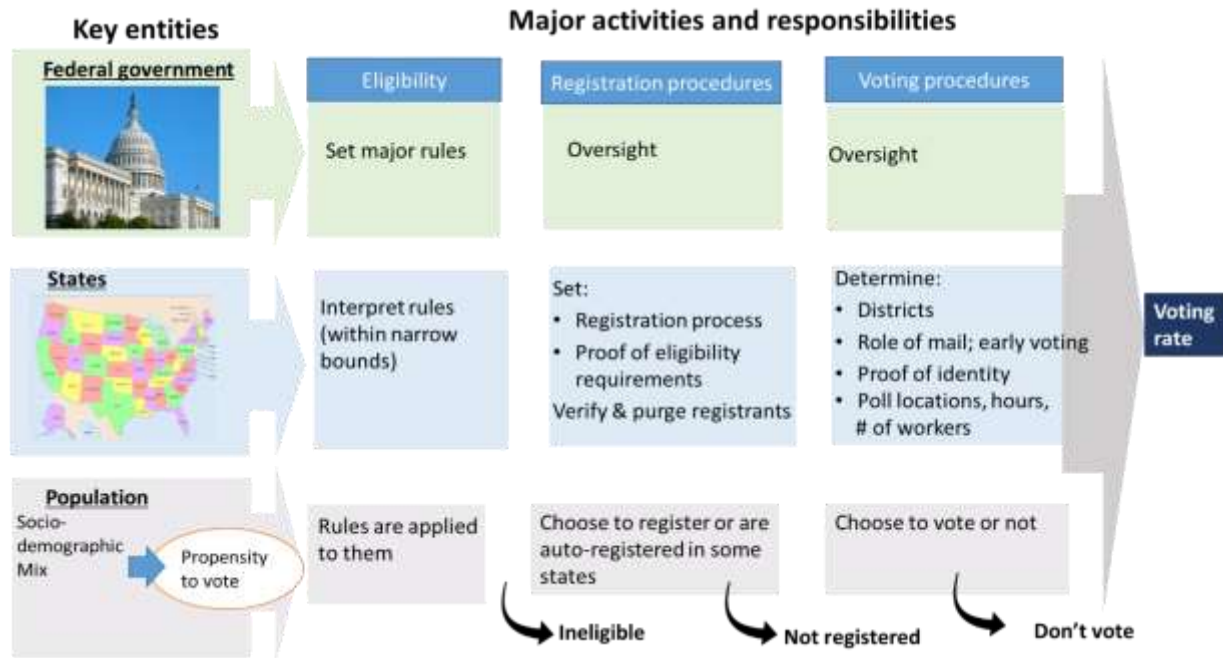
A. Background

Across U.S. states, voter participation varies substantially. In the 2020 presidential election 84.0 percent of the adult citizens living in the District of Columbia voted. In contrast, in Arkansas only 54.0 percent voted¹. Analysis of past elections shows that three main factors drive variation in voter participation:

- The voter-eligibility rules
- The registration and voting procedures the states use to administer the elections
- The sociodemographic characteristics of the population

Exhibit 1 summarizes how each of these factors can affect voting participation. The Federal government sets the framework for elections through regulations of eligibility, registration, and the voting process; it also provides oversight to ensure states and localities follow the federal laws. The federal government's role in determining eligibility and providing oversight stems directly from the Constitution, the Civil War amendments — Thirteenth, Fourteenth, and Fifteenth—and the Nineteenth, Twenty-fourth, and the Twenty-sixth Amendments, which collectively provide Congress the authority to prevent various types of discrimination in access to voting². The key role of the states is to set and implement procedures to administer the elections. Through these registration and voting procedures, the states can affect who is likely to vote. Finally, the sociodemographic characteristics of the population influence the voting rate; these are outside of a state's control.

Exhibit 1: How the Federal government and states can affect voter participation



B. Eligibility

While mostly outside the states’ purview to change, the voter-eligibility rules are extremely important, especially in explaining the increases in voting participation over decades and centuries. For the first US presidential election in 1788-89, the federal rules restricted eligible voters to land-owning, white men. In that first presidential election, voter participation (measured as percentage of the adult population eligible to vote) was only 6 percent³. In contrast, in 2020, when eligible voters included non-landowning white males, women, and blacks, the average state voter participation rate was 63.2 percent⁴. Over the years, the US has expanded eligibility to include all adults 18 and older who are citizens. Within this population, the main groups excluded are felons and those who are mentally incompetent.

C. Registration and Voting Procedures

Despite Federal oversight of elections, the decentralized way the US administers voting results in the voting process varies among states. They differ in registration processes and voting procedures (including both method of voting – e.g., mail, in-person, etc. – and election operations).

Registration. All states, except for North Dakota, use a registration system to verify who is eligible to vote. At one extreme, 37 percent of the states auto-register people in tandem with other administrative processes, such as getting a driver’s license. Similarly, some states make registration easy by allowing one to register at any time, including Election Day. In addition, online registration provides citizens easy access to the forms, automates submission, and speeds processing. At the other extreme, some states require that voters register more than a month before Election Day and, to prove state residency, provide multiple documents.

States are responsible for maintaining their voter registration lists and (typically) update them using death and driver-license records. Some states remove voters from the rolls who have not voted in many

years. Some states aggressively verify their voting roles against other administrative data and purge voters when matches are not perfect. We sought to examine registration purging and screening behaviors systematically and quantitatively but could not find meaningful metrics that covered at least two of our three Presidential election cycles of interest.

Voting procedures. States also display major differences in their voting procedures, which affect the voting options available and whether voting is easy or onerous. Voting is done solely by mail in a few states, while others use a mix of mail and in-person methods. In many states, in-person voting occurs over several weeks but in other states voting is limited to a single day. The information voters must provide at the polling site to verify their identity varies among states; in many states, it includes government-issued picture IDs. As states oversee voting operations, the resources spent on election activities varies, as does the smoothness of election operations. For example, over the last 3 presidential elections, the maximum average wait-time was 42.1 minutes; this occurred in Indiana in 2020. In contrast, several states (Colorado, Hawaii, Washington, and Oregon) had wait-times of less than a minute.⁵ These extremes in wait-times differ across states by a factor of 42.

Exhibit 2 shows the percentage of states using various registration and voting procedures over the past three presidential elections. For many of the changes in the past 15 years, the driver has been technological advances, such as real-time cross checking of administrative data sources. Historically, with the passage of the Voting Rights Act in 1965, the trend has been to more inclusive, voter friendly procedures. However, over time, the Supreme Court has removed many of the Act’s requirements, deeming them unconstitutional or no longer necessary. This cleared the way for state legislatures to pass laws that could make it difficult for some groups to vote. Supporters of these statutory changes argue that many of these changes are necessary to prevent voting fraud. However, they are more driven by the political goal of restricting voting among the opposition. Since the 2012 election and Barack Obama’s defeat of Mitt Romney, the use among the states of voter-friendly online registration, automatic registration, Election Day registration, and no-excuse absentee voting has increased. Similarly, the number of hours that the polls are open has increased. In contrast, the length of time between the last day one can register, and Election Day has been shrinking. Likewise, more states are requiring a photo ID (with no substitutes allowed) — a change often viewed as burdensome to voters. The use of early in-person voting and drop boxes, along with wait-times, follows no clear time-trend.

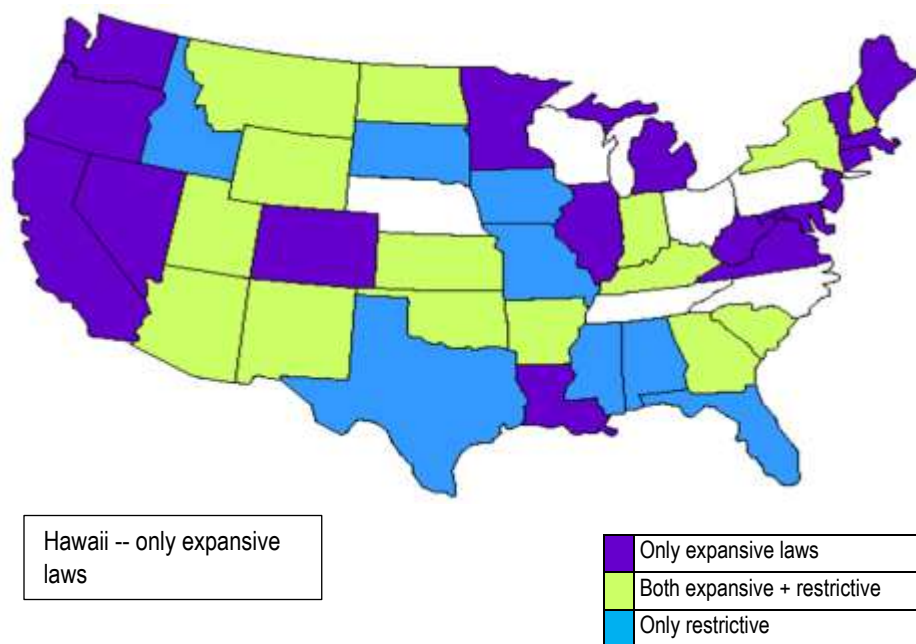
Exhibit 2. Percentage of states using certain registration and voting procedures, 2012-2020

Makes Voting:	Easier									Harder
Year	Online registration	Automatic registration	Election Day registration	No excuse absentee voting	Can register close to Election Day (≤ 22 days)	Early In-person voting	Drop box	Average wait time <10 minutes	Hours open > 12.5	Photo ID
2020	84%	23%	45%	69%	55%	84%	34%	55%	65%	53%
2016	69%	8%	33%	61%	45%	43%	33%	71%	57%	16%
2012	25%	4%	20%	59%	39%	71%	a	55%	55%	10%
Percentage point change: 2012 -20	59 points	19 points	25 points	10 points	16 points	13 points	—	0 points	13 points	43 points

^a We only have drop box data for two years. We were unable to find a 2012 source on this item.

Focusing on changes, Exhibit 2 reveals that between 2012 and 2020 a substantial share of states have adopted online, automatic, and Election Day registration, and photo identifications. Since 2020, states have continued to pass voting legislation. The Brennan Center for Justice tracks this type of legislation and classifies each new statute as restrictive or expansive. In Exhibit 3, we update the Brennan Center’s October 2022⁶ tally of voting laws enacted since 2020 with the Center’s data for January through May 2023⁷.

Exhibit 3: New Voting Laws Enacted since 2020



Since 2020, many states have been active legislatively, changing their voting procedures. In terms of expanding and restricting the voting process, the picture is mixed. Generally, states controlled by the Democrats have been enacting laws that make it easier to vote, while Republican-controlled states have been placing more restrictions on the voting process. In general, the restrictive laws states are further tightening the procedures in areas already addressed in earlier legislation. An example is the specific proof of identity a person must present to register or to vote.

A new area of legislation pertains to election interference. As the Brennan Center explains,

“... these include proposals to create entities controlled by the political branches of government for the prosecution of election crimes; enable political actors to prompt, initiate, or conduct audits of any election; impose new criminal penalties on election officials for routine election administration; or impose statewide bans on the use of machines to count ballots.”⁸

Proposals vary but include extreme, unprecedented ideas, such as the bills in Texas and Virginia that would allow presidential electors to disregard state election results and use alternative, non-election methods to pick the winner. Sorting out the effects of these new voting procedures is complicated by the paucity of robust, current evidence on how individual procedures (or groups of procedures) affect voting rates.

Exhibit 4 examines widely expressed views on how various procedures affect voting as compared to the academic evidence. The first four procedures listed in Exhibit 4 pertain to registration, while the next six procedures concern how states and localities conduct the actual voting process.

Exhibit 4: Evidence supporting the expected effect of registration and voting procedures

Procedure	Common view	Research evidence
1. Online registration	Expectation: Raises voting rate Makes it easier to register: individuals submit information online, where officials verify it against administrative information	Evidence: Raises voting rate ⁹ .
2. Automatic registration	Expectation: Raises voting rate The state registers individuals based on administrative data such as their driver license. Many believe this will increase voting rates because people no longer must take the time to register.	Evidence: Lowers voting rate or no effect Those who are automatically registered vote at a lower rate than people who must take action to register ⁴
3. Election day registration	Expectation: Raises voting rate Allows those who did not register to do so on election day.	Evidence: Raises the voting rate ^{4, 5}
4. Registration lead time	Expectation: Lowers voting rate Shrinking the time gap between when registration ends and election day gives people more last-minute opportunities to register	Evidence: Unaware of studies that quantitatively examine this policy.
5. Early voting	Expectation: Raises voting rate Provides another way to vote than going to the polls on election day.	Evidence: No effect Substitutes for Election Day voting rather than increasing the overall number of voters ^{10 11}
6. No-excuse absentee voting	Expectation: Raises voting rate Makes absentee ballots an option for all voters (Not always applied to all)	Evidence : No effect ¹²
7. Photo ID	Expectation: Lowers voting rate Voters must show a specific type of government issued ID. Many have postulated that this will be difficult for certain subpopulations.	Evidence: No effect or small effect ID requirements do not lower the voting rate as people adjust to the requirements; also, the political parties and organizations have helped voters obtain what they need to vote. ^{13, 14, 15}
8. Drop box	Expectation: Raises voting rate Provides a convenient alternative to mailing or going to the voting center.	Evidence: Raises the voting rate ^{16 17} but effects are small
9. Wait time	Expectation: Lowers voting rates by raising people's costs associated with voting	Evidence: Lowers voting rates and effect varies by race ¹⁸
10. Hours open	Expectation: Raises voting rates Same argument as above. ¹⁹	Evidence: Lowers voting rate ²⁰

As the exhibit shows, the evidence often does not support the common view of how a given policy affects voting. While online registration, Election Day registration, and the use of drop boxes, as expected, generally increase the voting rate, contrary to expectation, automatic registration, in-person early voting, and no-excuse absentee voting typically do not. Similarly, the evidence to date does not

support the common view that requiring voters to show a photo ID to vote lowers voter turnout materially.

II. Methods

A. Data

We compiled a state-level dataset that contains data from the 2012, 2016, and 2020 presidential elections. We explored including county-level data from the 2020 presidential election; however, we found their contribution (to explaining variation in state voting-rates) to be very limited, given that the voting rule variables across counties in the same state scarcely vary. The state-level dataset aligns with voting procedures being determined primarily at the state level. Unfortunately, the number of observations (including the District of Columbia) in a year is only 51. To acquire more observations, we use state data from three election cycles, while acknowledging that the observations are correlated over time.

We explored several options for addressing the correlation over time. These included using a fixed-effects model and focusing on changes using a difference-in-differences (DIFF) approach similar to Cantoni and Pons (2021)¹⁴. The fixed-effects model introduced significant multicollinearity, failing to produce estimates. The DIFF approach at the state level also is not viable as the 51 state sample size is not large enough to detect even small differences in outcomes between the experiment group (states that make a policy change) and the control group (states that did not make a change).

We include year dummy variables to control for factors unique to each election year, such as the COVID-19 pandemic and the specific candidates in an election.

B. Analytical Methods

We conduct bivariate and multivariate (regression) analysis using 3 cycles of presidential election data at the state level from 2012 to 2020. To examine the bivariate relationship between voting rates and state procedures, we split our sample of states into two groups and compare the groups' voting rates. We base the dividing line between the two groups on the independent variable (X) we focus on and that we believe is associated with the dependent variable (Y) – the voting rate among adult citizens in each state. We construct separate split samples for the registration procedures and the voting procedures. For each procedure, we compare the voting rate for the states that use that procedure to those that do not. In addition, we use the same approach to assess voting-process measures (such as wait time at the polls) and demographic characteristics. As these variables are continuous, we use a cut score to divide the sample into the comparison groups.

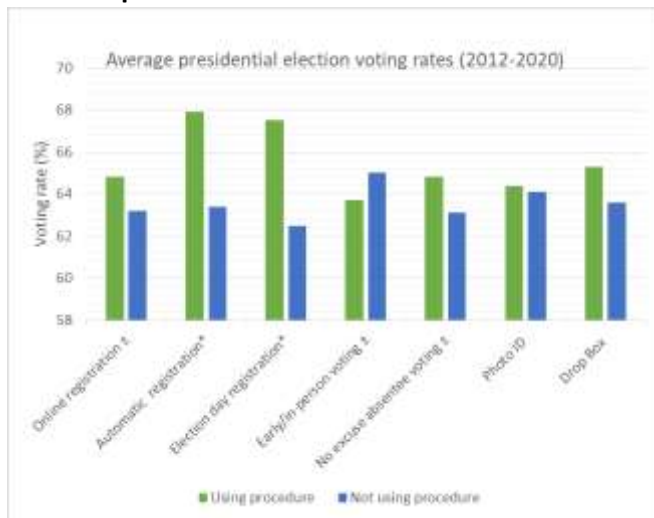
By its nature, bivariate analysis ignores omitted variables (e.g., the bivariate association between voting rate and age attributes to age what is in fact attributable to other variables such as income and race). Accordingly, we examine the combined effects of the election procedures and sociodemographic variables on voting rates using multivariate (multiple) regression. This method estimates the independent effect of each variable, holding constant the effects of the other explanatory variables.

III. Results

A. Bivariate findings on registration and voting procedures

Using the simple bivariate comparison, most of the seven voting procedures we examined are positively associated with higher voting rates and are marginally statistically significant at the .10 level (using a one-tailed test). As several of the variables we explore are in the marginal range for statistical significance, we have chosen to show variables with $.05 > p < .10$ as well as the more standard cut off for statistical significance of $p < .05$. Exhibit 5 shows that, for two of the seven registration and voting-process procedures, the voting-rate differences are statistically significant at the .05 level (denoted by an asterisk (*)). An additional three variables are statistically significant at the borderline .10 level (denoted by a plus-minus sign (\pm)).

Exhibit 5: Comparison of voting rates among states using different procedures



The following variables are statistically significant and associated with higher voting rates,

- Online registration
- Automatic registration
- Election Day registration
- No excuse absentee voting

In addition,

- Early/in-person voting

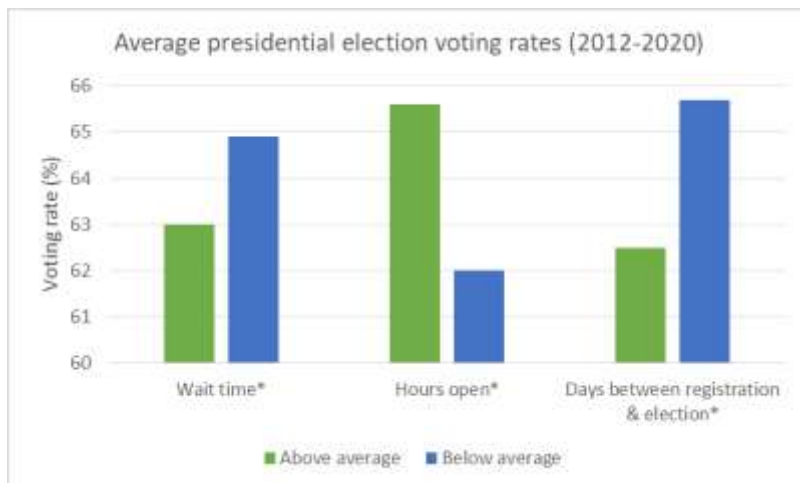
is statistically significant at the .10 level, but is associated with lower voting rates, which is

counter to common thinking but consistent with other study findings. In contrast, states that use drop boxes have higher voting rates; however, these rate differences are not statistically significant. Similarly, requiring a photo ID is associated with slightly higher voting rates, which is contrary to the common thinking regarding its effect. But, again, this difference is not statistically significant.

In Exhibit 6, we use the same comparison methods to assess the association between voting rates and three variables that reflect the smoothness of voting operations:

- Wait time
- Number of hours polls are open, and
- Registration lead time (Number of days between end of registration and Election Day).

Exhibit 6: Comparison of voting rates between states with above- and below-average election operations



We find all three measures to be statistically significant and associated with the voting rate in the expected direction. States with longer wait time at the polls have lower turnout. Also, states that keep their polls open longer on Election Day have higher turnout than those that close early. Finally, the greater the gap in the number of days between registration ending and Election Day, the lower the turnout.

B. Bivariate findings on sociodemographic characteristics

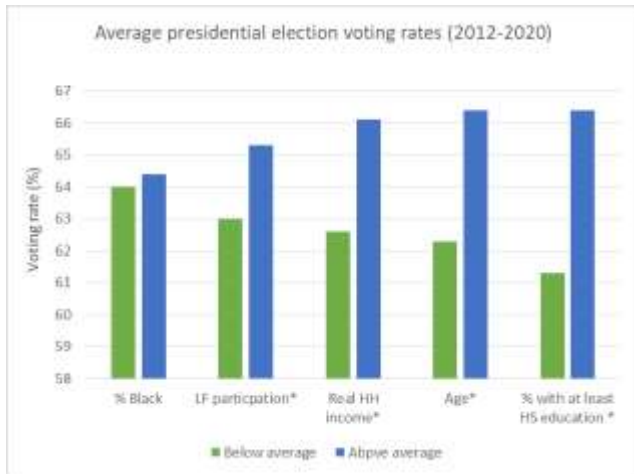
Registration and voting procedures are not, of course, the only factors that affect voting rates. Research has shown that voting participation is linked to sociodemographic characteristics. In specific, higher education, being older, and being white are all associated with a higher likelihood of voting. For example, in 2020, of those with a college degree or higher, 74 percent reported voting, while among high school graduates, only 51 percent reported voting. Moreover, only 21 percent of individuals who left school before 9th grade voted²¹. Similarly, age varies with voting rates. Among seniors (65 and older), 75 percent voted, while of those 18 to 24 years old, only 51 percent voted. Finally, in 2020, 62.6 percent of Black people voted while 68.3 percent of whites votes²². However, for the elections of Barack Obama, Black turnout eclipsed white turnout; 66.2 versus 62.2 percent in 2012 and 64.7 versus 64.4 in 2008.

We have socio-demographic information on state populations, including racial composition, age, education, income, and labor force participation rates. Exhibit 7 shows the findings from applying the bivariate method, which we used for assessing the association between registration and voting procedures and these socio-demographic variables. We find four variables vary positively with voting rates and are statistically significant:

- Labor force participation rate
- Median real household (HH) Income (adjusted for inflation)
- Median age, and
- Percent of the population that has less than a high school diploma

Turnout rates are higher in states with higher labor force participation rates, higher household income, an older population, and a lower share of the population having less than a high school degree. Although the voting rate is higher in states with substantial Black populations, this difference is not statistically significant.

Exhibit 7: Comparison of voting rates between states with above- and below socio-demographics characteristics



These results are consistent with past findings that suggest that sociodemographic factors play a key role in voter turnout. As a result, the analysis of voting rates needs to consider these factors in tandem with voting procedures and processes.

C. Multiple Regression Findings

We use multiple regression to isolate the separate effect of the individual policy variables and estimate their marginal impact while holding all other factors constant. Over the 3 election

cycles for which we have data, state voting rates (our Y variable) ranged from 47 to 84 percent. This range is not close to the 0 or 1 boundaries for a percentage that would require a different statistical method. Therefore, ordinary least squares (OLS) is appropriate, and we use OLS to estimate the model.

Variables in model. Following our conceptual construct (see Exhibit 1), our regression model includes variables we explored above in the bivariate analyses on registration and voting procedures and on sociodemographic characteristics. Exhibit 8 shows the model estimates using the state data for the three election cycles, 2012-2020. The dependent variable is the voting rate for citizens. To control for factors unique to an election, such as the COVID pandemic, we include separate dummy variables for 2016 and 2020. We denote variables that are statistically significant (2-tailed test) at .05 and .10 level with an asterisk (*) or plus-minus sign (±) accordingly.

Estimates of effects. The five election-policy variables that are statistically significant are:

- Average wait time,
- Days between registration and election,
- Election Day registration,
- Early in-person voting, and
- Requiring a photo ID for voting

Five state-level sociodemographic variables also are statistically significant:

- Percentage of the population that is Black,
- Labor force (LF) participation rate.

Exhibit 8. Voting rate model estimated on state presidential election data, 2012-2020

Adjusted R Square = 0.59			
Variables	Coefficients	t stat	P-value
Intercept	-1.698	-0.101	0.920
Voting process			
Wait time (average)	*-0.164	-3.176	0.002
Hours open	0.576	1.278	0.204
Demographic factors			
Percent of population black	*0.264	7.131	0.000
Median age	*0.517	2.923	0.004
Economic factors			
Labor force participation rate	*0.698	4.373	0.000
Real income	±0.000	-1.915	0.058
Education factor			
Percent population < HS education	*-0.388	-2.122	0.036
Voting laws that regulate registration			
1. Online registration	0.102	1.503	0.135
2. Days between registration & election	±2.383	1.925	0.056
3. Automatic voter registration	3.326	2.291	0.024
4. Election Day registration	*-2.864	3.768	0.000
5. Early/in-person absentee voting	*0.143	-3.356	0.001
6. No excuse absentee voting	-1.715	0.157	0.875
7. Photo ID required	±-1.215	-1.900	0.060
Election-specific factors			
2020 year dummy	*5.368	3.585	0.000
2016 year dummy	*-1.029	-0.994	0.322

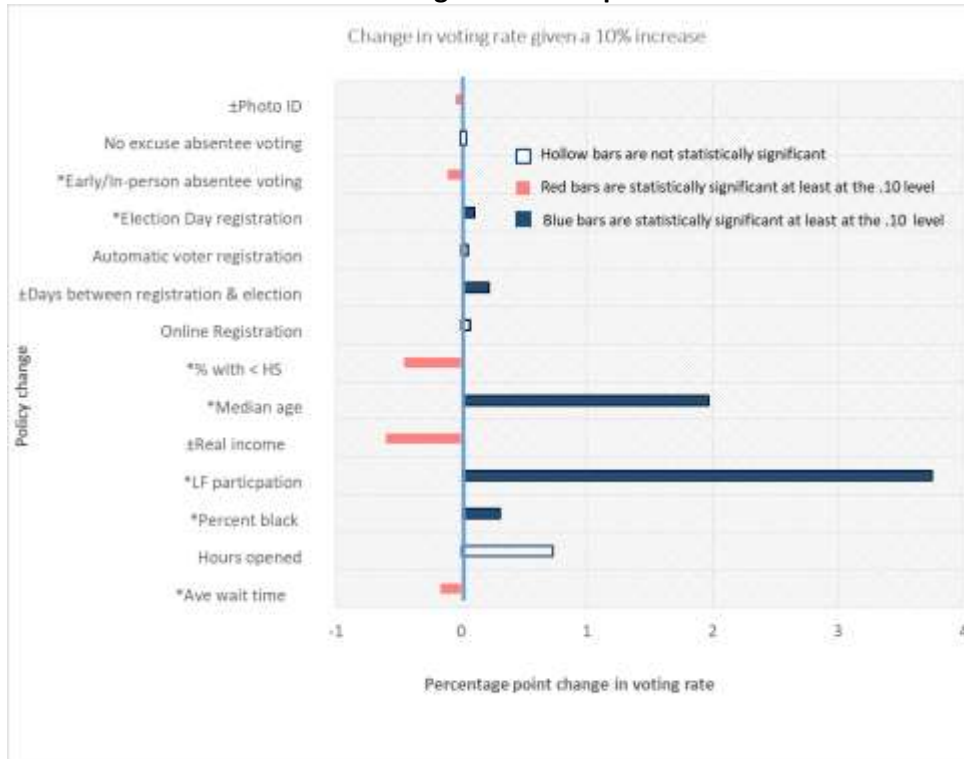
Note: Asterisk (*) denotes statistically significant estimate (at .05- percent level). We also note that the 3 variables, marked with a plus-minus sign (±), are statistically significant at the .10-level.

In a linear regression, the coefficients provide the estimated marginal effect of a unit increase in each of the independent variables. However, as the units vary among the variables and as the dichotomous variables are numerous, we standardize the increases in Exhibit 9 to facilitate comparison.

Effects of each X variable. Using the model estimates shown in Exhibit 8, we examine the effect on the voting rate that a 10 percent increase in each X variable is expected to have. First, to get an estimate of the 2020 voting rate, we evaluate the regression equation at the variable means. This estimated value (68.2 percent) is close to the average voting rate for the states in 2020 (66.8 percent), so the model is generating realistic estimates. Next, we calculate the impact of raising each X variable 10 percent above its mean level. Finally, we compare the voting rate that includes this impact to the 2020 estimated level of 68.2 percent.

Exhibit 9 shows the estimated effect for each X variable, holding all other variables constant. (There are 14 effects corresponding to the 14 sociodemographic and voting-policy variables.) In Exhibit 9, the (10) dark bars represent statistically significant variables (red if effect is negative and blue if it is positive). The (4) hollow bars represent those that are not statistically significant. Except for labor force participation and median age, the effect sizes are small. However, recall that, in close elections, effects that are “small” nonetheless can change the outcome.

Exhibit 9: Estimated effect on voting rate of a 10-percent increase in each x variable



One unexpected result is the coefficient on the percent Black is positive and statistically significant. This is a departure from past analyses that have shown Black people to have a lower turnout rate than whites. However, our measure reflects the concentration of Black people in a state and not the voting rate of Black people per se. Also, Obama’s re-election in 2012 spurred Black turnout. For that election, Black turnout exceeded white turnout by 4 percentage points (66.2 percent versus 62.2 percent).

Effects of registration/voting policy variables. None of the registration and voting policy variables would increase the voting rate by even 1 percent, given a 10-percent increase in their level. For the voting procedure variables (the dichotomous variables), a 10-percent increase would occur if the number of states adopting the procedure rose by 10 percent. For example, as we show in Exhibit 2, in 2020, 53 percent of the states (27 states) required a photo ID to vote. Consequently, an additional 3 (2.7) states would have to adopt these rules for the “photo ID” variable to display a 10-percent increase. Although only a few states would have to adopt such a rule to yield a 10-percent increase, making further changes may be difficult because the states that lack this requirement are nearly all controlled by Democrats.

Effects of sociodemographic variables. On addition to the policy variables, four sociodemographic variables also affect voting rates. Voting rates are found to be higher: the higher the rate of labor force participation, the older the median age of the population, the larger the share of the population that did not finish high school, and the larger the share of the population that is Black.

D. Multiple Change Scenarios

Although none of the policy variables changes the voting rate by more than a fraction of a percent individually, many states are making multiple changes to their voting procedures. To account for that

pattern, we examine the effect of three scenarios that involve multiple changes on voting rates. We developed these scenarios based on the behavior of the states that have passed restrictive voting legislation since 2020.

Most of the states enacting changes to their voting procedures are making multiple changes. To gauge the size of the effects of a “package” of changes in a state, we created three illustrative scenarios -- see Exhibit 9. Each scenario involves 2 to 3 changes. We do not intend the scenarios to be highly realistic; but rather to illustrate or suggest the types of changes occurring. With these scenarios, we can explore whether the magnitudes of the combined effects are large enough to plausibly alter the election-outcomes in some states.

Exhibit 9: Illustrative scenarios

Changes and Effect-measures	Scenario I	Scenario II	Scenario III
Change 1	Reduce no. of polling locations so wait time rises from 4.5 to 10 minutes	Cut polling hours from 12 to 11	Stop auto-registration
Change 2	End no-excuse absentee voting	End Election Day registration	Require photo ID
Change 3	Require photo ID	End registration 30 days before Election Day rather than 26	—

We apply the changes to three sample states to give a sense of how many voters could be affected by such changes. We use Arizona, a medium-sized state which Biden won by a slim margin; Idaho, a low-population state that heavily favored Trump; and Illinois, a high-population state that favored Biden. Using our regression, for each scenario we estimate the pre-/post-policy change in the three states’ voting rates. Exhibit 10 shows that all three scenarios produce more than a 1-percent change in the voting rates of these states.

Exhibit 10: Effect on Winner of Number of Voters and Estimated Change in State Voting Rate – Three Illustrative Scenarios

Changes and effect measures	Scenario I: Arizona	Scenario II: Idaho	Scenario III: Illinois
Number of eligible voters	5.1M	1.4M	8.8M
Change in state’s voting rate	-.11%	-3.50%	-1.72 %
Change in the number of voters	56,000 fewer voters	49,000 fewer voters	151,360 few voters
Margin of win ²³	Biden by 10, 457	Trump by 267,047	Biden by 1,024,901
Effect on who won	Plausibly would change winner	Very unlikely to affect winner	Very unlikely to affect winner

Note: Estimated change in voting rate due to a scenario is calculated from the regression model of state voting rates described in the text above, using each scenario’s assumed changes in voting procedures

As discussed above, a 1-percent change in the voting rate is large enough to change the election outcomes in highly competitive states. In two of our illustrative examples, the win margins -- in Idaho and Illinois -- were so large that such changes to the voting rules would not have changed the outcome. However, in Arizona, the win margin for Biden was less than 11,000 votes. We estimate that making the scenario I changes would have reduced the number of voters by 56,000. As this reduction in voters is more than four times larger than the win margin, this change could have affected who won.

IV. Conclusion

Historically, changes in voting procedures have had very small effects on voting rates. Voting rates are determined more by the characteristics of the population than by voting procedures. In addition, Federal laws limit the types of changes in voting procedures states can make. Although these Federal laws have been loosened, they still preclude the most extreme state proposals to restrict voting.

However, as of fall 2023, the number and degree of the changes that states are making in registration/voting procedures represent a significant departure from the past. Because these restrictive changes are so recent as well as substantial, whether recent history is sufficient to forecast the voting landscape in 2024 is an open question.

Based on the most recent Presidential election data and the laws enacted to date (October 2023), a major change in the 2024 voting rates (due to more restrictive laws) looks unlikely because it is difficult for states to change the voting rate using the policy levers they have. However, the outcome of the 2024 presidential election could be altered *if* the winning margins in, say, two or three states are very close, absent the implementation of new restrictive voting laws. In that situation, even with small effect sizes, new restrictive laws can change history.

Appendix A: Variable definitions and data sources

Variable	Source for data	Data access link
Citizen voting rates - the percentage of eligible citizens who voted	Census	All years: https://www2.census.gov/programs-surveys/cps/tables/time-series/voting-historical-time-series/a5a.xlsx
Online registration - dichotomous variable representing whether the state has some degree of online registration	MIT elections lab	2020 -2012: https://elections.mit.edu/#/data/map
Election day registration - dichotomous variable representing whether the state allows registration on Election Day	NCLS	All years: Used map from NCLS (https://www.ncsl.org/elections-and-campaigns/same-day-voter-registration) Click on state and it says date enacted N Dakota has no registration but is coded aa a 1 to keep them in the dataset
Registration lead time- the number of days between when registration ends and the Election Day	Ballotpedia	2020: https://ballotpedia.org/Voter_registration_deadlines,_2020 2016 https://ballotpedia.org/Voting_in_the_2016_general_elections 2012 https://ballotpedia.org/State_Poll_Opening_and_Closing_Times_(2012)
Automatic registration- dichotomous variable representing whether the state offers registration as part of another administrative process such as getting a driver's license	NCSL	All years: https://www.ncsl.org/elections-and-campaigns/automatic-voter-registration
No excuse absentee ballots-dichotomous variable representing whether states offers absentee ballots to everyone who wants one, States that mailed ballots to everyone are coded as a 1.	Brooking Institute. Pew Research and NPR	2020 https://www.brookings.edu/research/voting-by-mail-in-a-pandemic-a-state-by-state-scorecard/ Current map https://www.lgbtmap.org/democracy-maps/absentee_requirements 2016: https://www.pewresearch.org/wp-content/uploads/2016/10/earlyvoting_maps.png?w=640 2012 https://apps.npr.org/early-voting-2012/
Photo ID- dichotomous variable representing whether the state required a photo ID to vote 0	Brennan Center for Justice and Ballotpedia	2020 ; 2012: https://ballotpedia.org/Voter_identification_laws_by_state 2016: https://www.brennancenter.org/our-work/research-reports/election-2016-restrictive-voting-laws-numbers#strictphotoidlaws
Drop boxes- dichotomous variable representing whether	MAP	2020 https://www.lgbtmap.org/img/maps/citations-drop-box-policies.pdf

the state used drop boxes		
Early in person voting-dichotomous variable representing whether the state	Ballotpedia and Pew	2020 data on early voting from: https://ballotpedia.org/Early_voting_dates,_2020 2016 https://www.pewresearch.org/wp-content/uploads/2016/10/earlyvoting_maps.png?w=640 2012 https://ballotpedia.org/State_Poll_Opening_and_Closing_Times_(2012)_ (not sure it is really 2012 information)
Wait time: average wait time at the polls in minutes	MAP	All years https://www.lgbtmap.org/democracy-maps/polling_place_line_length
Hours open: Number of hours the polls are open in the state,	Ballotpedia	For all years https://ballotpedia.org/State_Poll_Opening_and_Closing_Times_(2022)#State-by-state_poll_times (you can change the date to get the year you want)
Percent Black: percentage of the population that is black (one race)	Census data accessed through Wikipedia & the CDC Wonder portal	2020 https://en.wikipedia.org/wiki/List_of_U.S._states_and_territories_by_African-American_population 2016 and 2012 used with CDC wonder portal
Real Median Household Income	St, Louis Federal Reserve	For all years: https://fred.stlouisfed.org/release/tables?rid=249&eid=259515&od=2020-01-01#
Labor Force participation – percentage of the population that is working or actively engaged looking for a job,	St, Louis Federal Reserve and Bureau of Labor Statistics	For 2020 and 2016 https://fred.stlouisfed.org/release/tables?rid=249&eid=259515&od=2020-01-01# For 2012 from https://www.bls.gov/lau/rdscnp16.htm
Age- Median age for the state	Census data accessed through commercial sites	2020: https://en.wikipedia.org/wiki/List_of_U.S._states_and_territories_by_median_age 2016: http://proximityone.com/st161dp1.htm 2012: https://www.caliper.com/featured-maps/mapitude-state-age-map.html
Percentage of the population with at least a high school degree	Economic Research Service, USDA	Used % w/o HS from ERS https://data.ers.usda.gov/reports.aspx?ID=17829 It is pooled data but it covers 2021-2020

Endnotes

¹ Source: U.S. Census Bureau, Current Population Survey, November 1972-2020. Data downloaded from: <https://www2.census.gov/programs-surveys/cps/tables/time-series/voting-historical-time-series/a5a.xlsx>

² Congressional Authority to direct how States Administer Elections, December 4, 2014. Accessed at <https://crsreports.congress.gov/product/pdf/RL/RL30747>

³ “Expansion of Rights and Liberties – The Right of Suffrage”. Online Exhibit: The Charters of Freedom. National Archives.
https://web.archive.org/web/20160706144856/http://www.archives.gov/exhibits/charters/charters_of_freedom_13.htmlREF

⁴ Calculated from states’ certified voting data assembled by the US Elections Project. Available at <https://www.electproject.org/2022g>

⁵ From the Elections Performance Index, a project of MIT Election Data and Science Lab. Extracted from: <https://elections.mit.edu/#/data/map>

⁶ The Brennan Center for Justice, Voting Round up: October 2022. <https://www.brennancenter.org/our-work/research-reports/voting-laws-roundup-october-2022>

⁷ The Brennan Center for Justice, Voting Round up: June 2023. <https://www.brennancenter.org/our-work/research-reports/voting-laws-roundup-june-2023>

⁸ The Brennan Center for Justice, Voting Round up: February 2023 <https://www.brennancenter.org/our-work/research-reports/voting-laws-roundup-february-2023>

⁹ Registration Innovation: The Impact of State Laws on Voter Registration and Turnout Holly Ann Garnett (Royal Military College of Canada) & Peter Miller (University of California, Irvine) Unpublished <https://esra.wisc.edu/wp>

¹⁰ Burden, B.C., Canon, D.T., Mayer, K.R. and Moynihan, D.P. (2014), Election Laws, Mobilization, and Turnout: The Unanticipated Consequences of Election Reform. *American Journal of Political Science*, 58: 95-109.

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¹² Yoder J, Handan-Nader C, Myers A, Nowacki T, Thompson DM, Wu JA, Yorgason C, Hall AB. How did absentee voting affect the 2020 U.S. election? *Sci Adv*. 2021 Dec 24;7(52):eabk1755.

¹³ Harden, J. J. and Campos, A. (2023). Who benefits from voter identification laws?. *Proceedings of the National Academy of Sciences*, 120(7).

¹⁴ Enrico Cantoni , Vincent Pons, Strict Id Laws Don't Stop Voters: Evidence from a U.S. Nationwide Panel, 2008–2018, *The Quarterly Journal of Economics*, Volume 136, Issue 4, November 2021, Pages 2615–2660,

¹⁵ Valentino, Nicholas A. Neuner, Fabian Guy, Why the Sky Didn't Fall: Mobilizing Anger in Reaction to Voter ID Laws, *Journal of Political Psychology*, 2017, V 38, P 331-350

¹⁶ William McGuire, Benjamin Gonzalez O'Brien, Katherine Baird, Benjamin Corbett, and Loren Collingwood "Evaluating the Impact of Drop Boxes on Voter Turnout." At <https://esra.wisc.edu/wp-content/uploads/sites/1556/2020/11/mcguire.pdf>

¹⁷ Loren Collingwood, William McGuire, Benjamin Gonzalez O'Brien, Katherine Baird, and Sarah Hampson. *Do Drop Boxes Improve Voter Turnout? Evidence from King County, Washington* *Election Law Journal: Rules, Politics, and Policy* 2018 17:1, 58-72

¹⁸ Alexander Agadjanian, Insights into Voting Wait Time from the 2016 Elections Performance Index, September, 2019, MIT Election Lab, at <https://elections-blog.mit.edu/articles/insights-voting-wait-time-2016-elections-performance-index>

¹⁹ MIT Election Lab, Voter Turnout, updated April 2021, at <https://electionlab.mit.edu/research/voter-turnout>

²⁰ Wolfinger, Raymond E., et al. "How Postregistration Laws Affect the Turnout of Citizens Registered to Vote." *State Politics & Policy Quarterly*, vol. 5, no. 1, 2005, pp. 1–23.

²¹ From Table A-2. Reported Voting and Registration by Region, Educational Attainment and Labor Force Status for the Population 18 and Over: November 1964 to 2022 at https://www2.census.gov/programs-surveys/cps/tables/time-series/voting-historical-time-series/hst_vote02.xlsx.

²² From Table A-1. Reported Voting and Registration by Race, Hispanic Origin, Sex and Age Groups: November 1964 to 2022 at https://www2.census.gov/programs-surveys/cps/tables/time-series/voting-historical-time-series/hst_vote01.xlsx

²³ https://www.270towin.com/2020-election-results-live/state/#google_vignette

Also used the State legislation data base; 2011-2023 to verify specific state's data when there was conflicting information. The data base is at:

<https://www.ncsl.org/elections-and-campaigns/state-elections-legislation-database>