# Science Advances

# Supplementary Materials for

## How did absentee voting affect the 2020 U.S. election?

Jesse Yoder, Cassandra Handan-Nader, Andrew Myers, Tobias Nowacki, Daniel M. Thompson,
Jennifer A. Wu, Chenoa Yorgason, Andrew B. Hall*

*Corresponding author. Email: andrewbhall@stanford.edu

**This PDF file includes:**

Sections S1 to S13
Figs. S1 to S8
Tables S1 to S9
References

# Supplementary materials

## S1 Vote-by-Mail and Turnout in 2020: Nationwide Analysis Data

Our nationwide dataset consists of indicators for three major election administration policies—no-excuse absentee voting, early voting, and universal vote-by-mail elections—and a count of ballots cast in presidential elections in all 50 states between 1980 and 2020. Election administration policies through 2008 were collected from Pew's "Early and Absentee Voting Dataset." The Pew data records states' election policies as written in relevant statutes and administrative codes. For elections after 2008, we coded indicators of election administration polices based on the reports of leading news and voter-information organizations (see `https://apps.npr.org/early-voting-2012/`, `https://www.npr.org/2020/09/14/909338758/map-mail-in-voting-rules-by-state`, `https://www.pewtrusts.org/en/research-and-analysis/reports/0001/01/01/nonprecinct-place-voting`, `https://www.vote.org/early-voting-calendar/`).

In order to accommodate varying terminology, early voting is broadly defined, including early voting, in-person absentee voting, and advance voting variants. No-excuse absentee includes states where individuals were allowed to cite COVID-19 generally as a valid excuse in 2020. States that allowed no-excuse absentee voting only under limited circumstances, like only for voters over the age of 65 (as in Indiana, for example) or only for voters with a specific issue related to COVID-19 (like Louisiana), are counted as requiring an excuse.

# S2 Texas and Indiana Absentee Ballot Application

Figure S1 shows a sample absentee ballot from Texas. As section 5 of the form shows, valid reasons for voting by mail include being 65 years of age or older, a disability, expecting to be absent from one's county on Election Day, or confinement in jail.

Figure S1: **Texas Absentee Ballot Application**



Figure S2 shows a sample absentee ballot from Indiana. As section 4 of the form shows, valid reasons for voting by mail include being 65 years of age or older, a disability, and expecting to be absent from one's county on Election Day.

# Figure S2: **Indiana Absentee Ballot Application**

**APPLICATION FOR ABSENTEE BALLOT BY MAIL ONLY IN 2020**
**For Election on 11 /3 / 2020**
State Form 47090 (R29 / 4-20) Indiana Election Division (IC 3-11-4-2; 3-11-4-5.1; 3-11-10-24)

**(ABS-MAIL)**

**INSTRUCTIONS:** Complete and return application so it is received by county election board at least twelve (12) days before election day. **DEADLINE: For the June 2, 2020 Primary Election, deadline for county to RECEIVE is May 21, 2020 BY 11:59 p.m. (local prevailing time). For November 3, 2020 General Election, deadline for county to RECEIVE is OCTOBER 22, 2020 BY 11:59 p.m. (local prevailing time). THIS APPLICATION CAN BE MAILED, E-MAILED, FAXED, OR HAND-DELIVERED. If you receive this completed application from a voter, you must file the completed application with the county or Indiana Election Division by noon, ten (10) days after receiving it or by the absentee deadline, whichever comes first. You must provide the date you received the completed application in box 5.**

**County of residence:** ALLEN

## 1. INFORMATION OF ABSENTEE BALLOT APPLICANT

**Name** *(Please print.)*

**Date of birth** *(mm/dd/yy)*
____ / ____ / ____

**Last Four Digits of Social Security Number**
*(Completing this box is optional.)*
__ __ __ __ *OR*
☐ I do not have a Social Security Number.

**Change of Name** *(If you changed your name since you registered to vote, please print your FORMER NAME to authorize an update to your voter registration:*

**Registration Address** *(number and street)*

**City/Town, State, ZIP Code**

**Telephone Number** *(Optional)*
( )

## 2. ABSENTEE BALLOT MAILING ADDRESS *(Please mail the absentee ballot for the election to me at this address if different from registration address.)*

**Mailing Address** *(number and street)*

**City/Town, State, ZIP Code**

## 3. PRIMARY ELECTION ONLY

Under state law, you must request a major political party ballot to vote in a primary election. You may vote on a public question without voting a political party ballot, if a referendum (public question) is held on the same day as the primary. **I apply for the ballot of the political party, a majority of whose candidates I voted for at the last general election, or whom I intend to vote for in the next general election:**

☐ **DEMOCRATIC PARTY** ☐ **REPUBLICAN PARTY** *OR* I do not wish to vote in either party's primary but wish to vote on a ☐ **PUBLIC QUESTION ONLY**

## 4. REASON TO VOTE ABSENTEE BALLOT BY MAIL

☐ I have a specific, reasonable expectation of being absent from the county on election day during the entire twelve (12) hours that the polls are open.

☐ I will be confined to my residence, a health care facility, or a hospital due to illness or injury during the entire twelve (12) hours that the polls are open.

☐ I will be caring for an individual confined to a private residence due to illness or injury during the entire twelve (12) hours that the polls are open.

☐ I am a voter with disabilities. *NOTE: If you are unable to mark the ballot or sign the ballot security envelope, you must contact the county election board to process your application.*

☐ I am a voter at least sixty-five (65) years of age.

☐ I will have official election duties outside of my voting precinct.

☐ I am scheduled to work at my regular place of employment during the entire twelve (12) hours that the polls are open.

☐ I am unable to vote at the polls in person due to observance of a religious discipline or religious holiday during the entire twelve (12) hours the polls are open.

☐ I am a voter eligible to vote under the "fail-safe" procedures in IC 3-10-11 or 3-10-12.

☐ I am a member of the military or a public safety officer.

☐ I am a "serious sex offender" (as defined in IC 35-42-4-14(a)).

☐ I am prevented from voting due to the unavailability of transportation to the polls.

**Contact your county election board if you wish to vote by absentee ballot in person at the county or before a traveling board; you want your power of attorney to apply for you; or are in Attorney General Confidentiality Program.**

**I swear *or affirm* under the penalties of perjury that all information set forth on this application is true to the best of my knowledge and belief. Perjury is punishable by imprisonment for up to 2½ years, a fine of up to $10,000, or both.**

**Signature of voter** *(or person designated to sign by a voter with disabilities who is unable to sign)*
**X**

**Date signed** *(mm/dd/yy)*
____ / ____ / ____

**NOTE: *5. IF YOU RECEIVED THIS COMPLETED APPLICATION FROM THE VOTER, PUT THE DATE IT WAS RECEIVED:***
_____ , 20____ .

## 6. INFORMATION OF INDIVIDUAL ASSISTING ABSENTEE BALLOT APPLICANT

**Name** *(Please print.)*

**Date of birth** *(mm/dd/yy)*
____ / ____ / ____

**Telephone Number** *(Day)*
( )

**Telephone Number** *(Evening)*
( )

**Registration Address** *(number and street)*

**City/Town, State, ZIP Code**

**Mailing Address** *(number and street)*

**City/Town, State, ZIP Code**

**I swear *or affirm* under penalties of perjury that I am not the employer of this voter, an officer of the voter's union, or an agent of the employer or union of this voter and have no knowledge or reason to believe that the individual submitting the application: (1) is ineligible to vote or to cast an absentee ballot; or (2) did not properly complete and sign the application.**

**Signature of Person Assisting Voter with Application**
**X**

**Date signed** *(mm/dd/yy)*
____ / ____ / ____

### FOR OFFICE USE ONLY

**Date** *(mm/dd/yy)*
____ / ____ / ____

**Precinct**

Is applicant required to provide additional documentation to the county voter registration office but has not yet done so? ☐ Yes ☐ No

# S3    Early In-Person Voting Frequency by State

In this section, we show how common voting early in-person is in each state. As we note in the main text, Texas is a state where early in-person voting is very common, and we suspect the effects of extending no-excuse absentee policies on turnout would be larger in states with fewer convenience voting options. Figure S3 uses survey data from the 2008 Survey of the Performance of American Elections (*31, 32*), which asks each respondent who voted in the 2008 general election to report their vote mode. Figure S3 shows the share of voters in each state who report voting early in-person. As we see, early in-person voting is more common in Texas (over 60% of voters) than almost any other state, and as the data in the body of our paper shows, the early voting rate in Texas has increased substantially since 2008, too.

Figure S3: **Early In-Person Voting Share, by State** The x-axis shows the share of votes cast in the 2008 general election that were reported as voting early in-person, and each point represents a state. As we see, early in-person voting is very common in Texas (TX), and is more common in Texas than nearly every other state.
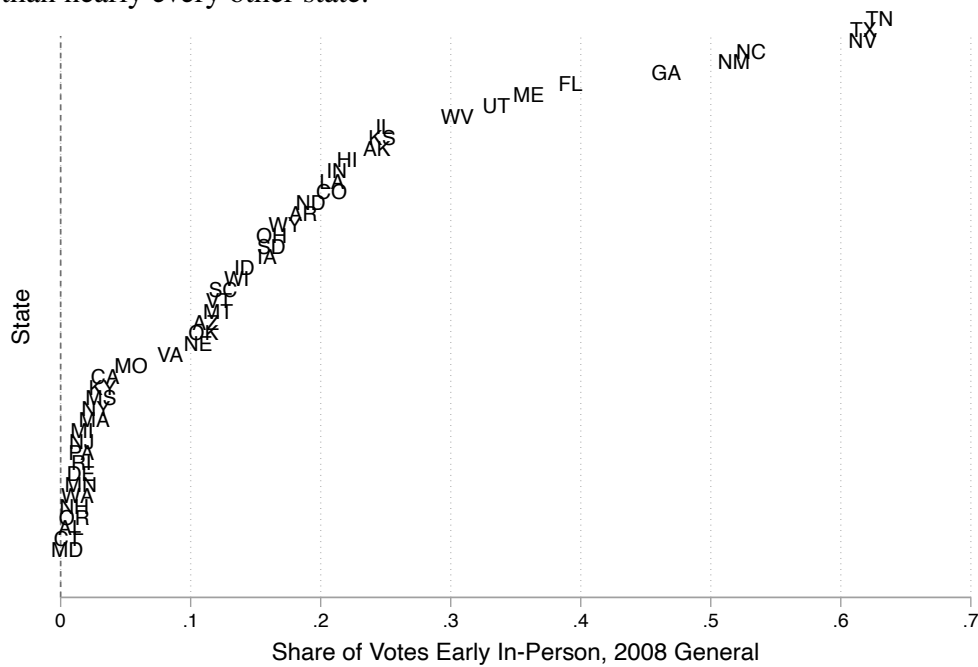
# S4 No-Excuse Absentee Policies by State

In this section, we summarize each state's absentee voting policy for the 2020 general election.

Table S1: **Review of No-Excuse Absentee Policies for 2020 General Election.** Universal Absentee refers to a policy where states mail every registered voter an absentee ballot application, in contrast to Universal Vote-by-Mail, where each registered voter is sent a mail ballot. States where COVID-19 fears are considered a valid excuse are coded as No-Excuse.

| State | Abbr. | 2020 General Election Policy | State | Abbr. | 2020 General Election Policy |
|---|---|---|---|---|---|
| Alabama | AL | No-Excuse | Montana | MT | No-Excuse[1] |
| Alaska | AK | No-Excuse | Nebraska | NE | Universal Absentee, No Excuse Required |
| Arizona | AZ | Universal Absentee, No Excuse Required | Nevada | NV | Universal Vote-by-Mail |
| Arkansas | AR | No-Excuse | New Hampshire | NH | No-Excuse |
| California | CA | Universal Vote-by-Mail | New Jersey | NJ | Universal Vote-by-Mail |
| Colorado | CO | Universal Vote-by-Mail | New Mexico | NM | No Excuse[1] |
| Connecticut | CT | Universal Absentee, No Excuse Required | New York | NY | No-Excuse |
| Delaware | DE | Universal Absentee, No Excuse Required | North Carolina | NC | No-Excuse |
| Florida | FL | No-Excuse | North Dakota | ND | No-Excuse |
| Georgia | GA | No-Excuse | Ohio | OH | Universal Absentee, No Excuse Required |
| Hawaii | HI | Universal Vote-by-Mail | Oklahoma | OK | No-Excuse |
| Idaho | ID | No-Excuse | Oregon | OR | Universal Vote-by-Mail |
| Illinois | IL | Universal Absentee, No Excuse Required | Pennsylvania | PA | No-Excuse |
| Indiana | IN | Excuse Required | Rhode Island | RI | Universal Absentee, No Excuse Required |
| Iowa | IA | Universal Absentee, No Excuse Required | South Carolina | SC | No-Excuse |
| Kansas | KS | No-Excuse | South Dakota | SD | No-Excuse |
| Kentucky | KY | No-Excuse | Tennessee | TN | Excuse Required[2] |
| Louisiana | LA | Excuse Required[3] | Texas | TX | Excuse Required |
| Maine | ME | No-Excuse | Utah | UT | Universal Vote-by-Mail |
| Maryland | MD | Universal Absentee, No Excuse Required | Vermont | VT | Universal Vote-by-Mail |
| Massachusetts | MA | Universal Absentee, No Excuse Required | Virginia | VA | No-Excuse |
| Michigan | MI | No-Excuse Required | Washington | WA | Universal Vote-by-Mail |
| Minnesota | MN | Universal Absentee, No Excuse Required | West Virginia | WV | No-Excuse |
| Mississippi | MS | Excuse Required[5] | Wisconsin | WI | No-Excuse[5] |
| Missouri | MO | No-Excuse | Wyoming | WY | No-Excuse |

1 - Counties authorized to send mail-in ballot applications

2 - Can cite COVID-19 as excuse if caring for individuals with special vulnerability.

3 - Absentee eligibility extended to medically vulnerable individuals, individuals under quarantine or
   who are caring for quarantined patiens, and those experiencing COVID-19 symptoms.

4 - Can cite COVID-19 as excuse if under physician-ordered quarantine or caring for individual under quarantine.

5 - Absentee ballot applications sent to most general election voters.

## S5 Summary of the Extant Literature on No-Excuse Absentee Effects

This section summarizes the literature to date on the effects of no-excuse absentee programs. Each row of Table S2 is a study on the effects of no-excuse absentee policies on turnout. Each column summarizes information about that study, including its setting, research design, effect on overall turnout, and its effect on absentee turnout.

In most studies, the reported relationships between no-excuse absentee policies and overall turnout are null (*33–36*), or positive but modest (*37–39*)—though see (*40*) for an estimated negative relationship. Studies that employ a clear causal design take one of two approaches. First, a few studies estimate the effects of no-excuse absentee on overall turnout using a difference-in-differences design, where the treatment occurs at the state level. These studies generally show null (*41, 42*) or even negative (*40*) effects of no-excuse policies on turnout, though difference-in-differences estimates from state-level treatments are generally imprecise (*43*). Second, the Meredith and Endter study estimates the effect of no-excuse absentee policies on turnout using an individual-level regression discontinuity design, leveraging Texas's 65 year-old age cutoff threshold. The study finds a null effect of the policy on overall turnout in the 2012 general election, though it did lead to a large increase in the share of voters who used absentee-by-mail voting, similar to previous work (*33, 37, 44*). The paper finds some suggestive evidence for a positive turnout effect when it focuses on counties where take-up of absentee voting was higher among eligible 65-year-olds.

Table S2:   **Review of No-Excuse Absentee Effects Literature.** X-Section (X-S) refers to a cross-sectional design, and DiD refers to a difference-in-differences design, and RDD refers to a regression discontinuity design.

| Paper | Setting | Design | Unit | Treatment Level | Turnout Effect | Absentee Mode Effect |
|---|---|---|---|---|---|---|
| Oliver (1996) (*33*) | US | X-Section | Individual | State | Null to Modest + | Large + |
| Karp and Banducci (2001) (*37*) | US | X-Section | Individual | State-Year | Modest + | Large + |
| Francia and Herrnson (2004) (*38*) | US | X-Section | St. Leg District | State | Modest + | |
| Fitzgerald (2005) (*41*) | US | DiD | State-Year | State-Year | Null | |
| Gronke et al. (2007) (*34*) | US | Panel | State-Year | State-Year | Null | |
| Giammo and Brox (2010) (*36*) | US | Panel | County-Year | State-Year | Modest − to Modest + | |
| Larocca and Klemanski (2011) (*39*) | US | Pooled X-S | Individual | State-Year | Modest + | |
| Springer (2012) (*42*) | US | DiD | State-Year | State-Year | Null | |
| Burden et al. (2014) (*40*) | US | Pooled X-S | Individual | State-Year | Modest − to Large − | |
| Burden et al. (2014) (*40*) | US | DiD | County-Year | State-Year | Modest − | |

# S6 Evaluating Trends in Turnout Among 64 and 65-Year-Olds

In this section, we present graphical evidence supporting our identification strategy. 65-year-olds are permitted to vote absentee without an excuse during our entire study period, and 64-year-olds have always needed an excuse. We use a difference-in-differences design to study how COVID-19 changed the effect of this policy. This design only works if we can safely assume that 64-year-olds and 65-year-olds would have been on the same trend if COVID-19 had not occurred. We assess the plausibility of this assumption by plotting the turnout and absentee voting rates for both groups over time. We find that turnout and absentee voting rates move approximately in parallel for 64-year-olds and 65-year-olds over time, suggesting that our parallel trends assumption is plausible.

Figure S4: **Trends in Turnout and Absentee Voting for 64 and 65-Year-Olds.**
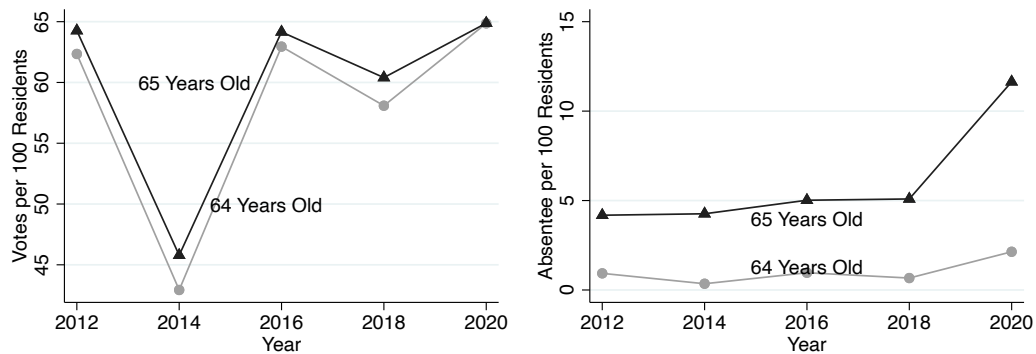


Starting in 2017, Texas implemented two policies that might increase absentee turnout for voters over 65. The first law slightly extends the amount of time an absentee ballot can arrive after election day and still be counted (see `https://capitol.texas.gov/billlookup/History.aspx?LegSess=85R&Bill=HB1151`). The second law automatically sends election judges from each party to any assisted living facility with more than 5 absentee ballot requests so that any resident can fill out an application and vote absentee on the spot, even if they

were not the ones who requested an absentee ballot (see `https://www.capitol.state.tx.us/BillLookup/History.aspx?LegSess=85R&Bill=HB658`). While these laws may have had an effect on absentee voting rates, it is not so large as to dominate other changes across elections.

# S7   Effects of No-Excuse Absentee Voting: Day-Level RD Analysis

In this section, we present additional estimates of the effect of no-excuse absentee eligibility in Texas comparing individuals' age using their precise birthdate, rather than just age. This approach allows us to restrict the comparison at the eligibility cutoff to individuals very similar birthdates. Doing so allows us to alleviate concerns about potential underlying differences between 64- and 65-year olds. Since precise estimates of population by exact birthday are not available, we report our turnout measure as the share of voters in the preceding presidential election year $(t-4)$ who turned out in $t$.

The running variable in the regression discontinuity design expresses the number of days passed since an individual's 65th birthday at the day of the respective election. We restrict analyses to individuals within 700 days of their 65th birthday, so approximately 2 years around the threshold. In Figures S5 and S6 we present graphical analyses in support of our main results using the (*45*) approach and fitting a fourth-order polynomial to outcomes in Texas' general elections in 2020 and 2016, as well as midterms in 2014 and 2018.

We report formal results from the day-level RD analysis in Table S3. Consistent with our approach in the main text, we restrict our attention to those who voted in the preceding general election (so 2016 voters for 2018 and 2020; 2012 voters for 2014 and 2016). The estimates show a sizable first-stage effect on take-up of absentee voting at the birthdate threshold, and, consistent with the analysis above, no effect on turnout. Using the `rdrobust` approach from (*45*), we estimate that being just old enough to vote absentee without an excuse causes more than a 7 percentage-point increase in the rate of voting absentee, yet causes a -0.76 percentage-point *decrease* in the share of 2016 voters who turned out in the 2020 election. The upper bound of the 95% confidence interval for this estimate is 0.2 percentage points—similar the

upper bound we estimated above in the year-level analysis. Estimates from elections prior to 2020 show a smaller, yet still significant effect of no-excuse absentee eligibility on absentee voting (increases ranging from 3 to 1.6 percentage points). In prior years, we also observe a small, positive coefficient on the effect on turnout among those who voted in the preceding general election, although this estimate is statistically insignificant at conventional levels.

There are two potential limitations to this approach, however. Perhaps because voters do not pay close attention to the eligibility conditions of signing up for absentee voting, and because you sign up for absentee voting well in advance of the election when you are not necessarily closely attuned to whether your birthday falls on election day or not, uptake in Texas's vote-by-mail program is not complete at the birthdate cutoff—a fact first observed by Meredith and Endter. As the uptake increases to the right of the threshold, just a few days after individuals' 65th birthday, the local average treatment effect estimated right at the threshold could underestimate the overall effect of the policy, which phases in over time. Second, because we do not have data on the population of Texas by date of birth, we cannot construct the ideal denominator for measuring turnout rates like we can in the year-level analysis.

Figure S5: **Share of Previous Election's Voters Voting In Next Election (left); Share of Absentee Voters Among All Voters In Election.**
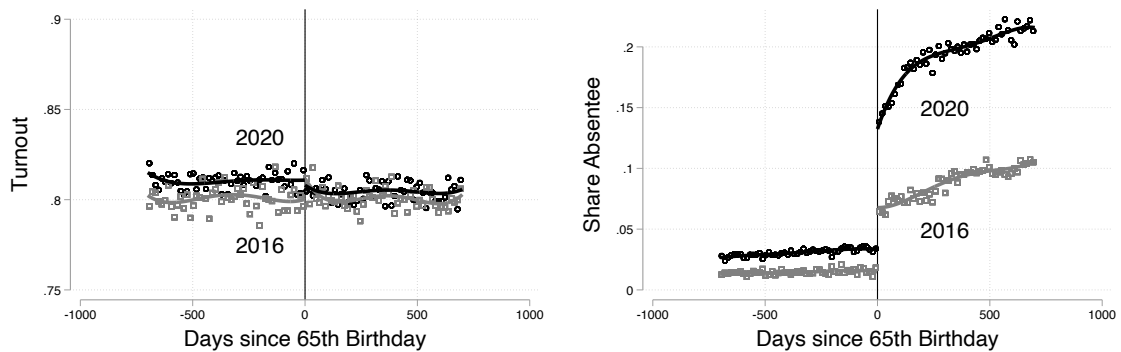
Figure S6: **Share of Previous General Election's Voters Voting In Midterm Election (left);**
**Share of Absentee Voters Among All Voters In Midterm Election (right).**
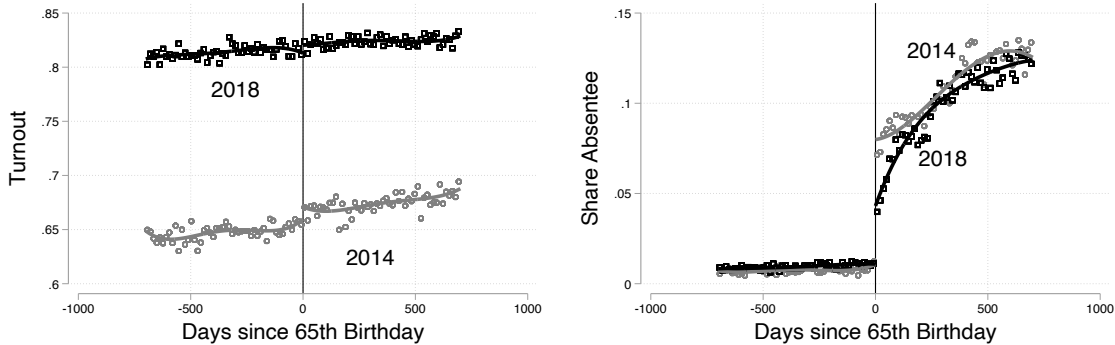
Table S3: **Day-level RD Shows Very Small Effects on Turnout, Large Effects on Absentee Share.**

|  | Turnout [0-100] | | | | % Absentee [0-100] | | | |
|---|---|---|---|---|---|---|---|---|
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Year | 2014 | 2016 | 2018 | 2020 | 2014 | 2016 | 2018 | 2020 |
| Age 65+ at Election | 1.04 | 1.09 | 0.61 | -0.76 | 2.99 | 2.70 | 1.62 | 7.13 |
|  | (0.54) | (0.56) | (0.45) | (0.48) | (0.27) | (0.24) | (0.25) | (0.30) |
| BW (left) | 283 | 174 | 245 | 205 | 93 | 118 | 86 | 170 |
| BW (right) | 283 | 174 | 245 | 205 | 93 | 118 | 86 | 170 |
| N | 195504 | 130049 | 194941 | 171071 | 70039 | 91825 | 73263 | 145839 |

Robust standard errors in parentheses.

Unit of observation is an individual voter in an election year.

Age 65+ at Election is a binary indicator if voter was 65 years or older at the time of the election.

# S8  Effects of No-Excuse Absentee Voting: Year-Level RD Analysis

To try to account for the age trend issue in the year-level analysis directly, we can estimate age trends on either side of the 65-year-old age cutoff, akin to a regression discontinuity design or interrupted time series analysis. However, this analysis is fairly weak compared to the day-level RD. Estimating the running variable at the year level does not provide much data, and the estimates are quite sensitive to the bandwidth and specification used.

Table S4 shows the results across a variety of specifications for two different bandwidths. Because we use frequency weights to mimic an individual-level dataset of the entire population of the state of Texas, we are unable to use the popular rdrobust estimation package, which cannot accommodate frequency weights. In all cases, we estimate the running variable model separately for each year, because, as Figure 2 showed, the steepness of the relationship between age and turnout varies by election.

Looking across the top row, we see that while implementing the RD makes the estimates noisy and more fragile, there is no consistent evidence for a large and positive effect. While several estimates are positive and significant for 2020, the largest upper bound of the 95% confidence interval here among the significant estimates is still only an effect of 0.57 percentage points. Moreover, in the most flexible cubic specifications, the estimate actually becomes negative, and the 95% confidence interval does not contain any positive effects. The only larger positive estimate comes in column 1, but it is by far the noisiest estimate—likely because, based on Figure 2, the functional form to the right of the discontinuity looks distinctly parabolic and not linear.

Interestingly, the year-level RD approach does sharpen the contrast between effects in previous presidential years vs. previous midterm election years. The RD estimates are not terribly

Table S4: **RD Estimates of the Effect of No-Excuse Absentee Voting on Turnout.**

| | Turnout [0-100%] | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| No Excuse (Age 65) × 2020 | 0.88 | 0.13 | -1.41 | 0.15 | -0.56 |
| | (0.08) | (0.12) | (0.18) | (0.08) | (0.12) |
| No Excuse (Age 65) × 2018 | 2.08 | 1.30 | 1.28 | 0.92 | 1.28 |
| | (0.08) | (0.13) | (0.20) | (0.09) | (0.12) |
| No Excuse (Age 65) × 2016 | 0.68 | -0.95 | -0.43 | -0.54 | 0.07 |
| | (0.08) | (0.13) | (0.20) | (0.09) | (0.12) |
| No Excuse (Age 65) × 2014 | 2.25 | 1.38 | 2.41 | 1.09 | 1.53 |
| | (0.09) | (0.14) | (0.21) | (0.10) | (0.13) |
| No Excuse (Age 65) × 2012 | 0.74 | 0.76 | 1.18 | 0.46 | 0.78 |
| | (0.09) | (0.14) | (0.21) | (0.10) | (0.13) |
| BW | 10 | 10 | 10 | 20 | 20 |
| Spec | Linear | Sq | Cubic | Sq | Cubic |
| # Observations | 26,404,531 | 26,404,531 | 26,404,531 | 48,248,213 | 48,248,213 |

Robust standard errors in parentheses. Unit of observation is an individual by
year. Running variable model estimated separately for each year.

stable, looking across the columns, but do support the idea of a meaningful and positive effect

on turnout in 2018 and 2014, with more modest and possibly null effects in 2016 and 2012.

Again, this suggests that the mobilizing effect of vote by mail, while never very large, are larger

when voter attention and salience are lower. Nevertheless, no obvious evidence for a large ef-

fect is found; the largest positive estimate we report is 0.88 percentage points, while the largest

negative one is -1.41 percentage points, giving a sense of the instability of this approach.

# S9 Effects of No-Excuse Absentee Voting in 2020: Difference-in-Differences Analysis

As we discussed above, our regression discontinuity analyses address confounders that smoothly change with age. For example, the average citizen becomes slightly more likely to cast a ballot as they age. The regression discontinuity design cannot address confounders that change discretely at the same age threshold as access to no-excuse absentee voting. For example, some government programs are available for 65-year-olds and not 64-year-olds.

We address this concern by shifting our focus from whether no-excuse absentee affects tunout to whether the effects were much larger in 2020 than in previous years. We estimate this difference in the effects using a difference-in-differences analysis, comparing the age 65-age 64 turnout gap in Texas in 2020 to the gap in 2012 and 2016. Table S5 presents the results.

Contrary to the expectation that access to absentee voting was especially important for promoting participation in 2020, we find that the turnout gap between 65-year-olds and 64-year-olds shrunk in 2020 relative the two previous presidential elections. This finding lines up with our main results in the body of the paper.

We urge caution in interpreting these results. As we mention while discussing our main analysis and the regression discontinuity analyses, turnout increased in 2020 most among young people. This feature of 2020 reduces the turnout gap in 2020 relative to previous years even if the effect of no-excuse absentee voting was the same in 2012, 2016, and 2020.

Still, the much smaller estimated effect in 2020 relative to previous years casts doubt on the conventional wisdom that the effect of no-excuse absentee would be greatest in 2020.

Table S5: **Effect of No-Excuse Absentee Voting on Turnout and Vote Mode, Texas Presidential General Elections, 2012-2020.**

| | Overall Turnout Pr(Voted)[0-100%] | | Absentee Voting Pr(Absentee)[0-100%] | | Early In-Person Pr(Early)[0-100%] | | Election Day In-Person Pr(Elec. Day)[0-100%] | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| No-Excuse (Age=65) × 2020 | -1.53 | -1.52 | 5.84 | 5.76 | -7.19 | -7.14 | -0.14 | -0.14 |
| | (0.16) | (0.15) | (0.07) | (0.07) | (0.16) | (0.16) | (0.09) | (0.09) |
| # Obs | 1,602,969 | 1,602,969 | 1,602,969 | 1,602,969 | 1,602,969 | 1,602,969 | 1,602,969 | 1,602,969 |
| Year FE | Y | N | Y | N | Y | N | Y | N |
| County-by-Year FE | N | Y | N | Y | N | Y | N | Y |
| Age FE | Y | N | Y | N | Y | N | Y | N |
| County-by-Age FE | N | Y | N | Y | N | Y | N | Y |

Robust standard errors in parentheses. Unit of observation is an individual by year. Texans aged 64 or younger who are eligible to vote must provide a valid excuse if they wish to vote absentee. Those aged 65 or older who are eligible to vote can vote absentee without an excuse.

Table S6: **Effect of No-Excuse Absentee Voting on Turnout and Vote Mode, Texas General Elections, 2012-2020.**

| | Overall Turnout Pr(Voted)[0-100%] | | Absentee Voting Pr(Absentee)[0-100%] | | Early In-Person Pr(Early)[0-100%] | | Election Day In-Person Pr(Elec. Day)[0-100%] | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| No-Excuse (Age=65) × 2020 | **0.02** | **-0.00** | **9.50** | **9.50** | **-8.81** | **-8.81** | **-0.67** | **-0.70** |
| | (0.12) | (0.12) | (0.06) | (0.06) | (0.13) | (0.13) | (0.06) | (0.06) |
| No-Excuse (Age=65) × 2018 | 2.31 | 2.35 | 4.42 | 4.42 | -1.60 | -1.56 | -0.51 | -0.51 |
| | (0.13) | (0.13) | (0.04) | (0.04) | (0.13) | (0.13) | (0.09) | (0.09) |
| No-Excuse (Age=65) × 2016 | 1.21 | 1.24 | 4.05 | 4.06 | -2.20 | -2.13 | -0.65 | -0.69 |
| | (0.13) | (0.13) | (0.05) | (0.05) | (0.14) | (0.14) | (0.09) | (0.09) |
| No-Excuse (Age=65) × 2014 | 2.86 | 2.83 | 3.91 | 3.92 | -0.54 | -0.53 | -0.51 | -0.56 |
| | (0.14) | (0.14) | (0.04) | (0.04) | (0.13) | (0.12) | (0.11) | (0.10) |
| No-Excuse (Age=65) × 2012 | 1.92 | 1.80 | 3.25 | 3.25 | -0.99 | -1.04 | -0.34 | -0.41 |
| | (0.14) | (0.14) | (0.04) | (0.04) | (0.14) | (0.14) | (0.10) | (0.10) |
| 2020 | 2.52 | | 1.21 | | 11.64 | | -10.33 | |
| | (0.13) | | (0.03) | | (0.14) | | (0.08) | |
| 2018 | -4.26 | | -0.26 | | -0.92 | | -3.07 | |
| | (0.14) | | (0.02) | | (0.14) | | (0.10) | |
| 2016 | 0.61 | | 0.03 | | 4.10 | | -3.52 | |
| | (0.14) | | (0.03) | | (0.14) | | (0.10) | |
| 2014 | -19.41 | | -0.58 | | -19.43 | | 0.59 | |
| | (0.14) | | (0.02) | | (0.13) | | (0.11) | |
| Intercept (2012 mean) | 62.34 | | 0.93 | | 45.68 | | 15.74 | |
| # Obs | 2,645,223 | 2,645,223 | 2,645,223 | 2,645,223 | 2,645,223 | 2,645,223 | 2,645,223 | 2,645,223 |
| County-by-Year FE | N | Y | N | Y | N | Y | N | Y |

Robust standard errors in parentheses. Unit of observation is an individual by year. Texans aged 64 or younger who are eligible to vote must provide a valid excuse if they wish to vote absentee. Those aged 65 or older who are eligible to vote can vote absentee without an excuse.

# S10 Within-County Estimates of No-Excuse Absentee Voting Eligibility

In this section, we present results from additional specifications that analyse the effect of no-execuse absentee voting eligibility on overall turnout and vote modes.

In Tables S6 (Texas) and S7 (Indiana), we report the estimates from regression specifications with country-by-year fixed effects. Odd columns replicate the estimates reported in Table 1, while even columns report the estimates for the specification with county-by-year fixed effects. Throughout all four outcomes (overall turnout and different vote modes), we observe no meaningful difference between estimates from the two specifications.

Table S7: **Effect of No-Excuse Absentee Voting on Turnout and Vote Mode, Indiana General Elections, 2018 and 2020.**

| | Overall Turnout Pr(Voted)[0-100%] | | Absentee Voting Pr(Absentee)[0-100%] | | Early In-Person Pr(Early)[0-100%] | | Elec. Day In-Person Pr(Elec. Day)[0-100%] | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| No-Excuse (Age=65) × 2020 | **0.25** | **0.30** | **5.34** | **5.37** | **-3.24** | **-3.18** | **-1.85** | **-1.89** |
| | (0.22) | (0.22) | (0.17) | (0.17) | (0.23) | (0.22) | (0.20) | (0.20) |
| No-Excuse (Age=65) × 2018 | 1.13 | 1.14 | | | | | | |
| | (0.24) | (0.24) | | | | | | |
| 2020 | 8.01 | | 11.79 | | 34.71 | | 23.16 | |
| | (0.23) | | (0.11) | | (0.16) | | (0.14) | |
| Intercept (2018 mean) | 61.66 | | | | | | | |
| # Obs | 324,230 | 324,230 | 167,322 | 167,322 | 167,322 | 167,322 | 167,322 | 167,322 |
| County-by-Year FE | N | Y | N | Y | N | Y | N | Y |

Robust standard errors in parentheses. Unit of observation is an individual by year. People in Indiana aged 64 or younger who are eligible to vote must provide a valid excuse if they wish to vote absentee. Those aged 65 or older who are eligible to vote can vote absentee without an excuse.

Figure S7: **No Effect of No-Excuse Absentee Policy on 2020 General Election Turnout for Low-Propensity Voters**. This graph shows the turnout rate in 2020 across age for people who voted in the 2016 general election and the 2018 midterm vs. those who only voted in the 2016 general election, who are lower-propensity voters.
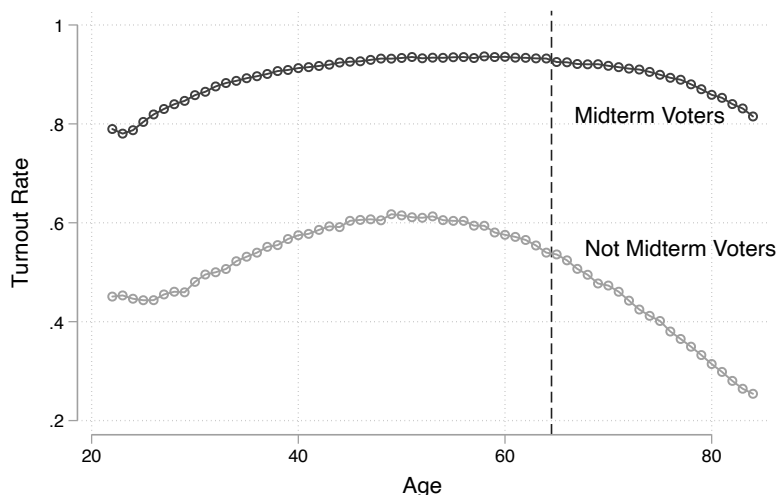


## S11    Effects of Absentee Eligibility for Low vs High-Propensity Voters

Because voter turnout was extraordinarily high in 2020, and citizens over 60 years old are generally quite likely to vote, our Texas and Indiana analyses are focused on citizens who were very likely to vote even without a no-excuse absentee policy. Might this mask an effect for lower propensity voters, and especially for younger voters who could vote no-excuse absentee in many other states?

In Figure S7 we present evidence that extending no-excuse absentee voting did not make low-propensity voters more likely to turnout in 2020, in Texas at least. Citizens who voted in 2016 and 2018 were much more likely to vote in 2020 than those who voted in 2016 but not 2018—93% of the 64-year-old midterm voters voted in 2020 while only 54% of the 64-year-old non-midterm voters participated in 2020. Yet, even for the lower-propensity voters,

extending no-excuse absentee voting did not increase participation, as illustrated in the lack of a discontinuous jump up in the turnout rate from age 64 to age 65 for non-midterm voters in the plot. In this analysis, we cannot distinguish between movers and non-voters. While this will generally suppress the overall turnout level and the effect size at the discontinuity, we expect the moving rate to be relatively smooth at the threshold, making this strong evidence of a limited effect for lower-propensity voters.

That the effect of no-excuse absentee voting is similar for those who voted in 2018 and those who did not suggests two important takeaways: First, the non-effect of no-excuse absentee voting we document for 65-year-olds in Texas may generalize to other age groups, and therefore to other states where no-excuse absentee voting was made available to all age groups. Second, it is consistent with the theoretical argument that lowering the costs of voting through convenience voting reforms generally has modest or null effects on turnout because the dominant driver of individuals' decisions to participate is interest rather than convenience.

## S12  Countervailing Effect of Being Labeled High Risk for COVID-19 Death

In this section, we explore the possibility that, because the CDC used age 65 as a marker for "older adults" and highlighted their increased risk of dying from COVID-19, turnout among 65-year-olds may have been suppressed compared to 64-year-olds. Using data from the vendor L2, we gather information on turnout for 12 states that had no-excuse, but not universal, absentee vote policies during the 2020 general election, and also reported comprehensive information on vote mode in their voter files. These states did not implement age cutoffs for absentee voting, so voters had to request an absentee ballot if they wished to avoid voting in person. We calculate the share of ballots that were cast absentee, as well as turnout as a percentage of the citizen voting-age population, in each age group. If 65-year-olds were deterred from voting in person due to CDC guidelines, we would expect to see a sharp increase among 65-year-olds in choosing to vote absentee compared to 64-year-olds, and if they were deterred from voting in general, we would also expect to see a sharp decrease in turnout compared to 64-year-olds. Figure S8 shows that both the share of absentee ballots and turnout increased smoothly from ages 64 to 65. While these states are different from TX and IN in that they allow any age group to vote absentee, the evidence suggests that 65-year-olds were not especially deterred from voting compared to 64-year-olds in the 2020 general election.

Figure S8: **Share of Ballots Cast Absentee and Overall Turnout by Age for 12 States with No-Excuse Absentee Policies**.
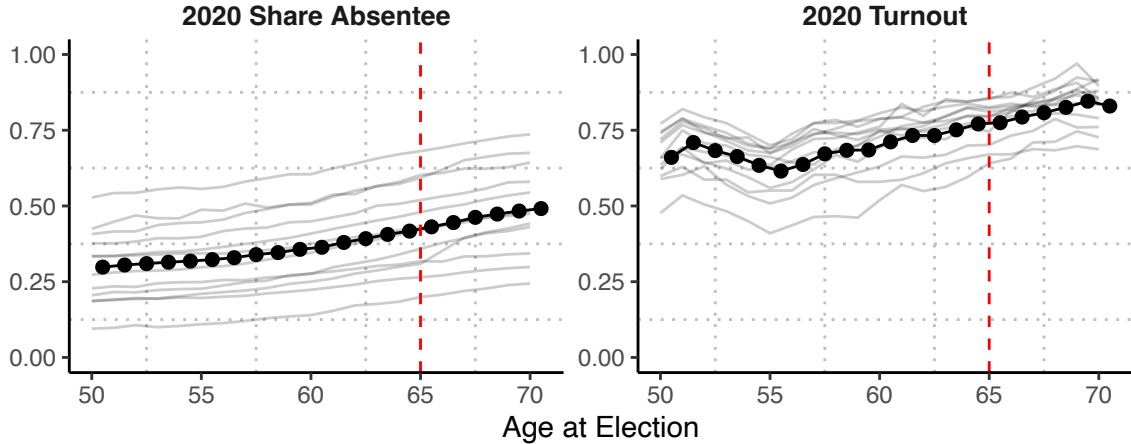


Average over states shown in bold. States included: FL, GA, ID, ME, NC, NH, OK, PA, SD, WI, WV, WY.

Table S8: **Effect of No-Excuse Absentee Voting on Party Turnout in 2020.**

| | Texas | | | Indiana | | |
|---|---|---|---|---|---|---|
| | Dem % of Turnout [0-100] | | | Dem % of Turnout [0-100] | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| No-Excuse (Age $\geq$ 65) | 0.22 | -0.57 | -0.39 | 0.53 | 0.42 | -0.84 |
| | (0.14) | (0.21) | (0.13) | (0.28) | (0.42) | (0.26) |
| # Obs | 391,619 | 3,714,875 | 6,387,178 | 116,771 | 1,092,475 | 1,829,944 |
| Ages Included | 64-65 | 55-75 | 45-85 | 64-65 | 55-75 | 45-85 |
| Age Specification | – | Cubic | Cubic | – | Cubic | Cubic |

Robust standard errors in parentheses. Columns 1 and 4 present the simple difference in means for voters aged 65 vs. 64. Columns 2-3 and 5-6 present estimates that include a broader range of ages and adjust for age trends using cubic specifications of age estimated separately on either side of the discontinuity.

# S13 Additional Results On Partisan Effects Of Absentee Voting Eligibility

## S13.1 Partisan Effects of No-Excuse Absentee Voting On Turnout (Texas and Indiana)

In Figure 2, we demonstrate that voting access to voting by mail causes Democrats to adopt more mail voting than Republicans but causes a similarly sized drop in Democrats voting in person. As a result, no-excuse absentee policies should not offer a permanent sizable advantage to either party. Table S8 reports formal estimates of the effect of no-excuse absentee voting on the Democratic share of turnout in Texas and Indiana in 2020.

The first column presents the simple difference in the percentage of 2020 voters (that is, those who turned out) who were Democrats, between those aged 64 and those aged 65. Approximately 0.2 percentage points more voters were Democrats among 65-year-old voters. The upper bound of the 95% confidence interval is 0.5 percentage points.

In the next two columns, we address the possibility of trending across age which could bias the simple difference in means. To do so, we expand the range of ages included, and we flexibly

control for trends in age on either side of the discontinuity using a cubic polynomial. When we do this, the estimate turns negative and remains small in magnitude.

The final three columns replicate this analysis for Indiana. In column 4, the simple difference in means shows roughly a 0.5 percentage-point increase in the percentage of voting 65-year-olds who are Democrats in 2020, with the upper bound of the 95% confidence interval at about 1.1 percentage points. However, this difference shrinks, and in column 6 turns negative, when we try to account for trending.

## S13.2   Partisan Effects of No-Excuse Absentee Voting on Vote Mode (Texas)

In this section, we extend our analysis to show that despite the much larger rate of absentee voting among 65-year-old Democrats in 2020 compared to 65-year-old Republicans, the option to vote absentee without an excuse did not have large effects on the partisan composition of overall turnout in 2020. In column 1 of Table S9, we estimate the effect of the no-excuse absentee policy on whether on the share of overall turnout of ballots cast by Democrats. We include a set of year fixed effects to control for unobservable characteristics of the election that might affect the Democratic share of turnout, like candidates on the ballot, for example. The interaction terms in column 1 of Table S9, then, tell us the difference in the Democratic share of turnout between 65-year-olds, who can vote absentee without an excuse, and 64-year-olds, who cannot.

As the table shows, in 2020, the Democratic share of turnout among 65-year-olds was about 0.22 percentage points higher than the Democratic share of turnout among 64-year-olds. The 95% confidence interval ranges from -0.06 to + 0.5 percentage points, so we can rule out dramatic effects of the no-excuse absentee policy on the partisan share of turnout. Moreover, the effect in 2020 is estimated to be smaller than in 2018 and 2016 (though a formal test would not reject the null of no difference), which is hard to square with the narrative that these policies

had an especially large partisan effect in 2020.

Despite the modest-to-null effects of no-excuse absentee voting on the partisan composition of the electorate, in columns 2-7 we provide formal estimates to document the substantial polarization in vote mode. Columns 2, 4, and 6 of Table S9 show the effects of the no-excuse absentee policy on the share of Democratic turnout that uses absentee voting, early in-person voting, and election day voting, respectively. Columns 3, 5, and 7 show the same for Republicans.

As we saw graphically in Figure **??**, having access to no-excuse absentee voting in 2020 led to a large increase in the use of absentee voting among Democrats, about 24.4 percentage points, compared to about an 11.1 percentage point increase among Republicans. Comparing this difference between Democrats and Republicans separately for each year, we see that the partisan gap in vote mode appeared prior to 2020, but has grown dramatically during the COVID-19 pandemic. As we showed graphically in Figure **??**, these increases in absentee voting for both parties are drawn primarily from substitution away from early in-person voting.

In sum, our evidence suggests that no-excuse absentee voting has a modest-to-null effect on how Democratic the composition of turnout is in an election. Although we cannot conclusively say that no election outcome could be changed by no-excuse absentee voting—indeed, it is unlikely any statistical analysis could ever reach this conclusion—we can say that the modest size of the effect is at odds with much of the public discussion about vote-by-mail and the supposed strength of its benefit for Democrats.

Table S9: **Effect of No-Excuse Absentee Voting on Party Turnout, Texas General Elections, 2012-2020.**

| | Dem % of Turnout | Absentee % of Turnout | | Early % of Turnout | | Elec. Day Ballots % of Turnout | |
|---|---|---|---|---|---|---|---|
| | | D | R | D | R | D | R |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| **No-Excuse (Age=65) × 2020** | **0.22** | **24.37** | **11.09** | **-23.61** | **-9.96** | **-0.76** | **-1.13** |
| | **(0.14)** | **(0.22)** | **(0.10)** | **(0.24)** | **(0.14)** | **(0.12)** | **(0.11)** |
| No-Excuse (Age=65) × 2018 | 0.25 | 11.14 | 6.09 | -9.59 | -4.39 | -1.55 | -1.70 |
| | (0.15) | (0.18) | (0.08) | (0.30) | (0.18) | (0.26) | (0.17) |
| No-Excuse (Age=65) × 2016 | 0.47 | 8.78 | 5.61 | -7.86 | -4.15 | -0.91 | -1.46 |
| | (0.14) | (0.18) | (0.08) | (0.30) | (0.17) | (0.26) | (0.16) |
| No-Excuse (Age=65) × 2014 | -0.11 | 11.44 | 7.78 | -8.54 | -4.13 | -2.90 | -3.65 |
| | (0.17) | (0.24) | (0.10) | (0.47) | (0.24) | (0.44) | (0.23) |
| No-Excuse (Age=65) × 2012 | -0.09 | 3.02 | 5.35 | -2.40 | -3.96 | -0.62 | -1.40 |
| | (0.13) | (0.16) | (0.08) | (0.40) | (0.18) | (0.39) | (0.17) |
| 2020 | 11.77 | 3.49 | 1.21 | 13.65 | 14.94 | -17.15 | -16.15 |
| | (0.13) | (0.12) | (0.05) | (0.31) | (0.15) | (0.29) | (0.15) |
| 2018 | 8.49 | 0.05 | -0.45 | 5.62 | 2.74 | -5.67 | -2.29 |
| | (0.14) | (0.10) | (0.04) | (0.34) | (0.17) | (0.33) | (0.17) |
| 2016 | 6.28 | 0.38 | -0.04 | 7.24 | 5.07 | -7.63 | -5.03 |
| | (0.14) | (0.11) | (0.05) | (0.34) | (0.17) | (0.33) | (0.17) |
| 2014 | 4.92 | -0.28 | -0.77 | -9.37 | -13.06 | 9.65 | 13.83 |
| | (0.15) | (0.11) | (0.05) | (0.43) | (0.21) | (0.42) | (0.21) |
| Intercept (2012 mean) | 14.73 | 1.39 | 1.51 | 76.97 | 72.63 | 21.64 | 25.87 |
| # Obs | 1,570,098 | 337,728 | 1,232,370 | 337,728 | 1,232,370 | 337,728 | 1,232,370 |

Robust standard errors in parentheses. Unit of observation is an individual by year. Texans aged 64 or younger who are eligible to vote must provide a valid excuse if they wish to vote absentee. Those aged 65 or older who are eligible to vote can vote absentee without an excuse.

## REFERENCES AND NOTES

1. N. Corasaniti, J. Rutenberg, "Republicans pushed to restrict voting. Millions of Americans pushed back," *The New York Times*, 5 December 2020.

2. S. Levine, A. Chang, "Democrats took a risk to push mail-in voting. It paid off," *The Guardian*, 3 December 2020.

3. E. Kilgore, "State Republicans' War on Voting by Mail Has Begun," *New York*, 18 February 2021.

4. S. Verba, K. L. Schlozman, H. E. Brady, *Voice and Equality: Civic Voluntarism in American Politics* (Harvard Univ. Press, 1995).

5. A. Lijphart, Unequal participation: Democracy's unresolved dilemma Presidential Address, American Political Science Association, 1996. *Am. Polit. Sci. Rev.* **91**, 1–14 (1997).

6. A. Keyssar, *The Right to Vote: The Contested History of Democracy in the United States* (Basic Books, 2000).

7. L. Keele, W. Cubbison, I. White, Suppressing Black votes: A historical case study of voting restrictions in Louisiana. *Am. Polit. Sci. Rev.* **115**, 694–700 (2021).

8. A. J. Berinsky, N. Burns, M. W. Traugott, Who votes by mail?: A dynamic model of the individual-level consequences of voting-by-mail systems. *Public Opin. Q.* **65**, 178–197 (2001).

9. A. J. Berinsky, Who votes by mail? A dynamic model of the individual-level consequences of voting-by-mail systems. *Am. Politics Res.* **33**, 471–491 (2005).

10. N. W. Monore, D. E. Sylvester, Who converts to vote-by-mail? Evidence from a field experiment. *Election Law J.* **10**, 15–35 (2011).

11. M. R. Michelson, N. Malhotra, A. Healy, D. P. Green, A. Carnegie, A. A. Valenzuela, The effect of prepaid postage on turnout: A cautionary tale for election administrators. *Election Law J.* **11**, 279–290 (2012).

12. A. S. Gerber, G. A. Huber, S. J. Hill, Identifying the effect of all-mail elections on turnout: Staggered reform in the Evergreen State. *Polit. Sci. Res. Methods* **1**, 91–116 (2013).

13. D. M. Thompson, J. A. Wu, J. Yoder, A. B. Hall, Universal vote-by-mail has no impact on partisan turnout or vote share. *Proc. Natl. Acad. Sci.* **117**, 14052–14056 (2020).

14. M. Barber, J. B. Holbein, The participatory and partisan impacts of mandatory vote-by-mail. *Sci. Adv.* **6**, eabc7685 (2020).

15. A. Downs, *An Economic Theory of Democracy* (Harper and Row, 1957).

16. W. H. Riker, P. C. Ordeshook, A theory of the calculus of voting. *Am. Polit. Sci. Rev.* **62**, 25–42 (1968).

17. R. E. Wolfinger, S. J. Rosenstone, *Who Votes?* (Yale Univ. Press, 1980).

18. F. F. Piven, R. A. Cloward, *Why Americans Don't Vote* (Pantheon Books, 1988).

19. A. Berinsky, Making voting easier doesn't increase turnout. *Stanford Social Innovation Review* (2016).

20. M. P. McDonald, United States Election Project (2021); www.electproject.org. [accessed 1 February 2021].

21. D. R. Biggers, M. J. Hanmer, Who makes voting convenient? Explaining the adoption of early and no-excuse absentee voting in the American states explaining the adoption of early and no-excuse absentee voting in the American states. *State Pol. Policy Quarterly* **15**, 192–210 (2015).

22. B. Highton, R. E. Wolfinger, The first seven years of the political life cycle. *Am. J. Polit. Sci.* **45**, 202–209 (2001).

23. Y. Bhatti, K. M. Hansen, H. Wass, The relationship between age and turnout: A roller-coaster ride. *Elect. Stud.* **31**, 588–593 (2012).

24. A. L. Campbell, *How Policies Make Citizens: Senior Political Activism and the American Welfare State* (Princeton Univ. Press, 2003), vol. 83.

25. A. L. Campbell, Policy makes mass politics. *Annu. Rev. Polit. Sci.* **15**, 333–351 (2012).

26. C. Walker, L. Pully, Texas Democrats' path to victory. *Texas Democrats* (2019).

27. R. Staff, Your party and the State Republican Executive Committee have been busy. *Republican Party of Texas* (2018).

28. T. Kousser, S. Hill, M. Lockhart, J. Merolla, M. Romero, How do Americans want elections to be run during the COVID-19 crisis? *Res. Pol.* **12**, (2020).

29. M. Lockhart, S. J. Hill, J. Merolla, M. Romero, T. Kousser, America's electorate is increasingly polarized along partisan lines about voting by mail during the COVID-19 crisis. *Proc. Natl. Acad. Sci.* **117**, 24640–24642 (2020).

30. B. Nyhan, C. Skovron, R. Titiunik, Differential registration bias in voter file data: A sensitivity analysis approach. *Am. J. Polit. Sci.* **61**, 744–760 (2017).

31. T. Hall, R. Michael Alvarez, G. Lenz, Charles Stewart III, A. Berinsky, S. Ansolabehere, 2008 survey of the performance of American elections. *Caltech/MIT Voting Technology Project* (2009); https://dspace.mit.edu/handle/1721.1/49847.

32. R. M. Alvarez, I. Levin, J. A. Sinclair, Making voting easier. *Polit. Res. Q.* **65**, 248–262 (2012).

33. J. E. Oliver, The effects of eligibility restrictions and party activity on absentee voting and overall turnout. *Am. J. Polit. Sci.* **40**, 498 (1996).

34. P. Gronke, E. Galanes-Rosenbaum, P. A. Miller, Early voting and turnout. *Pol. Sci. Pol.* **40**, 639–645 (2007).

35. P. Gronke, E. Galanes-Rosenbaum, P. A. Miller, D. Toffey, Convenience voting. *Annu. Rev. Polit. Sci.* **11**, 437–455 (2008).

36. J. D. Giammo, B. J. Brox, Reducing the costs of participation: Are states getting a return on early voting? *Polit. Res. Q.* **63**, 295–303 (2010).

37. J. A. Karp, S. A. Banducci, Absentee voting, mobilization, and participation. *Am. Politics Res.* **29**, 183–195 (2001).

38. P. L. Francia, P. S. Herrnson, The synergistic effect of campaign effort and election reform on voter turnout in state legislative elections. *State Pol. Policy Quarterly* **4**, 74–93 (2004).

39. R. Larocca, J. S. Klemanski, U.S. state election reform and turnout in presidential elections. *State Pol. Policy Quarterly* **11**, 76–101 (2011).

40. B. C. Burden, D. T. Canon, K. R. Mayer, D. P. Moynihan, Election laws, mobilization, and turnout: The unanticipated consequences of election reform. *Am. J. Polit. Sci.* **58**, 95–109 (2014).

41. M. Fitzgerald, Greater convenience but not greater turnout: The impact of alternative voting methods on electoral participation in the United States. *Am. Politics Res.* **33**, 842–867 (2005).

42. M. J. Springer, State electoral institutions and voter turnout in presidential elections, 1920–2000. *State Pol. Policy Quarterly* **12**, 252–283 (2012).

43. R. S. Erikson, L. C. Minnite, Modeling problems in the voter identification - Voter turnout debate. *Election Law J.* **8**, 85–101 (2009).

44. J. A. Dubin, G. A. Kalsow, Comparing absentee and precinct voters: A view over time. *Polit. Behav.* **18**, 369–392 (1996).

45. S. Calonico, M. D. Cattaneo, R. Titiunik, Robust nonparametric confidence intervals for regression-discontinuity designs. *Econometrica* **82**, 2295–2326 (2014).