

## SOCIAL SCIENCES

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

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The 2020 U.S. election saw a record turnout, saw a huge increase in absentee voting, and brought unified national Democratic control—yet these facts alone do not imply that vote-by-mail increased turnout or benefited Democrats. Using new microdata on millions of individual voters and aggregated turnout data across all 50 states, this paper offers a causal analysis of the impact of absentee vote-by-mail during the COVID-19 (coronavirus disease 2019) pandemic. Focusing on natural experiments in Texas and Indiana, we find that 65-year-olds voted at nearly the same rate as 64-year-olds, despite the fact that only 65-year-olds could vote absentee without an excuse. Being just old enough to vote no-excuse absentee did not substantially increase Democratic turnout relative to Republican turnout. Voter interest appeared to be more important in driving turnout across vote modes, neutralizing the electoral impact of Democrats voting by mail at higher rates during the historic pandemic.

## INTRODUCTION

In the United States, the 2020 election, the coronavirus disease 2019 (COVID-19) pandemic, and the debate around the legitimacy of the election that culminated in the events of 6 January 2021 poured gasoline onto an already raging debate about how the nation should administer its elections and, in particular, about voting by mail. While the two parties disagree vehemently over its value, pundits and practitioners on both sides seem to agree that it increases turnout and helps Democrats (1, 2), pointing out that the 2020 election featured an unprecedented expansion of voting by mail in response to the pandemic, had an unusually high turnout, and resulted in unified Democratic control at the federal level. This conventional wisdom, despite being at odds with the beliefs of most election administration experts, structures the partisan debate over vote-by-mail, with many Republican state legislatures considering or implementing reforms to roll back vote-by-mail, while most Democrats support its expansion (3).

But did voting by mail significantly change participation and massively help Democrats in 2020? Or was turnout high in 2020 due more to high voter interest and engagement during an extraordinary election taking place under unprecedented circumstances? These questions speak directly to the health of democratic elections, as broad participation is thought to be a cornerstone of effective democracy (4, 5), and rules governing access to the ballot have often been used to suppress participation (6, 7).

Here, we provide the first causal evidence of the effect of no-excuse absentee voting—the most common form of vote-by-mail—during the 2020 presidential election and in historical context using newly assembled data from a natural experiment involving millions of individual voters. We start with an observational analysis of aggregate trends in turnout across all 50 states, comparing those that did and did not roll out no-excuse absentee voting for 2020. Then, we use administrative microdata from Texas and from Indiana on nearly 3 million voters, where we can leverage a “natural experiment” based on an age cutoff for no-excuse absentee voting

eligibility. This natural experiment was first studied in an unpublished working paper by M. Meredith and Z. Endter, referenced in the Acknowledgments section of this paper. Using these datasets, we establish two basic facts that cast doubt on the conventional wisdom about vote-by-mail in 2020: First, states that did not offer no-excuse absentee voting in 2020 saw turnout increases similar in magnitude to states that offered no-excuse absentee voting for the first time in 2020. Second, we find that Texas and Indiana residents eligible to vote absentee without an excuse in 2020 were much more likely to vote absentee, but only slightly more likely to turnout compared to those just shy of the age threshold for voting absentee without an excuse. Last, we show that while a greater share of Democrats preferred to vote absentee during the pandemic in Texas, the increase in absentee voting was offset by a smaller share of Democrats using early in-person voting.

These facts suggest that no-excuse absentee voting did not meaningfully change the composition of the electorate during the 2020 election. They are inconsistent with the idea that vote-by-mail massively increased participation and markedly boosted the Democratic Party’s performance. However, they are largely consistent with the predictions of election administration experts, as well as studies before the pandemic that generally suggested that no-excuse absentee voting has had modest or null effects on turnout before COVID-19 (see section S5 in the Supplementary Materials for a review of this literature), that it had been more successful at mobilizing already-engaged voters than marginal ones in previous elections (8–11), and that even universal vote-by-mail, a more dramatic policy, had relatively modest effects on participation before COVID-19 (8, 12–14). The pandemic was thought to greatly magnify the perceived costs of in-person voting and brought much more salience to vote-by-mail than had ever existed before. Studying vote-by-mail in 2020 thus presents a highly unique test case for theories seeking to explain why people vote in elections and how the decision to participate relates to the costs of voting.

Why did no-excuse absentee voting not have a bigger effect on the 2020 election, despite all of the rhetoric around it, and despite its evident popularity as a way to vote? The conventional wisdom that expanding vote-by-mail increased turnout substantially and markedly helped the Democrats is built, implicitly if not explicitly, on a popular theory of political participation that links the decision

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to vote in an election to the convenience of how one is able to cast a vote (15–18), suggesting that there are many marginal voters who will turn out if doing so is convenient and will not turn out otherwise. However, others argue that, in high-salience elections like 2020, there are probably few marginal voters who base their decision to participate on the relative costs of one mode of voting over another, so long as the inconvenience and difficulty of in-person voting remains within reasonable bounds (19). When an election is highly salient, voters are more engaged, and, having paid the cognitive costs to engage, may be less sensitive to costs related directly to the act of voting; when an election is less salient, on the other hand, voters are less engaged and there is more space for the costs related to voting to affect the decision to participate.

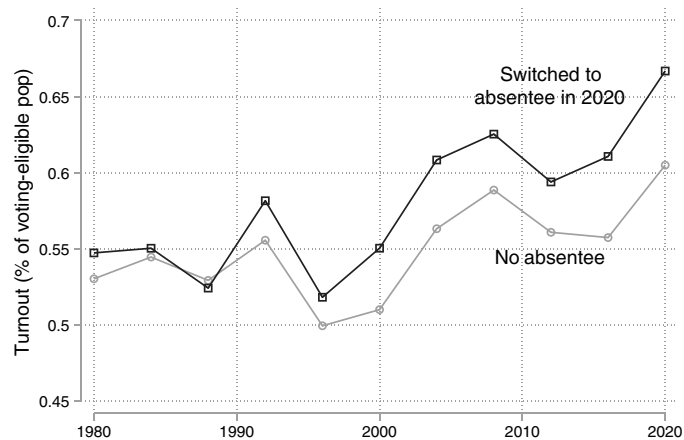
The results of our paper are important for understanding why people vote and can help to inform future reforms intended to encourage participation in elections. They are not intended to address key normative concerns critical to the vote-by-mail debate.

## RESULTS

### Nationwide analysis

In 2020, a number of states rolled out opportunities to vote by mail, particularly to vote absentee without an excuse, for the first time. To evaluate whether there is any evidence that states that implemented vote-by-mail in 2020 saw higher turnout than other states, we assembled data on turnout and on election administration policies for all 50 states. We describe this data collection process in detail in section S1 in the Supplementary Materials. Election turnout data are from (20) and were downloaded from The United States Elections Project website. All data were merged at the state-year level.

As Fig. 1 shows, there is no evidence that turnout rose markedly more in states that switched to no-excuse absentee voting fully for 2020 than in states that did not. Instead, turnout is up markedly for both groups of states. Compared to the 2016 presidential election,



**Fig. 1. Comparing rates of turnout for states with different vote-by-mail policies in 2020.** States that implemented no-excuse absentee voting in 2020 for the first time do not exhibit noticeably bigger increases in turnout in 2020 than states that did not implement it. States implementing full no-excuse absentee voting in 2020 are AL, AR, CT, DE, KY, MA, MI, MO, NH, NY, PA, SC, VA, and WV. States without full no-excuse absentee voting are IN, LA, MS, and TX.

turnout was up roughly 4.8 percentage points in states that did not implement no-excuse absentee voting for 2020 and up roughly 5.6 percentage points in states that did. This 0.8 percentage point difference in the increase from 2016 for the two groups of states does not necessarily indicate a modest but positive effect of no-excuse absentee voting either. It could well be statistical noise; between 2012 and 2016, turnout increased by 1.7 percentage points in states that would go on to implement no-excuse absentee voting in 2020 (but which had not yet implemented it in 2016) and by  $-0.003$  percentage points in states that would go on to not implement it in 2020 (or in 2016). This roughly 1.7 percentage-point gap is more than twice as large as the gap in 2020, yet cannot reflect an effect of absentee voting. Hence, it gives a sense of the amount of random variation that can give rise to different election-to-election changes in turnout. These estimates are noisy and the empirical design is not strong—the timing of vote-by-mail implementation is not random, and parallel trends are unlikely to be met—but they do not suggest major effects of vote-by-mail on turnout in 2020, and they seem inconsistent with hyperbolic claims made about the role of vote-by-mail in the 2020 election.

Properly estimating the effect of no-excuse absentee policies on turnout is difficult because the states that implement no-excuse absentee differ systematically from those that do not implement these policies. Idiosyncratic differences in 2020 or persistent trends over time that differ in states that changed their policies for 2020 make it difficult to derive any strong conclusions from a nationwide analysis. For example, Biggers and Hanmer (21) find evidence that states with an older voter population and those in the West are more likely to adopt no-excuse absentee policies, and changes in voter participation among adopting and nonadopting states may be different for many reasons. While suggestive, we need a stronger empirical strategy to isolate the causal effect of no-excuse absentee voting.

### The causal effect of vote-by-mail in 2020: Quasi-experimental evidence from Texas and Indiana

To obtain stronger causal evidence, we focus on the states of Texas and Indiana, where we can leverage an age cutoff that these states use in their vote-by-mail programs. We use administrative data on the turnout and vote mode of all voters in these two states to evaluate the effect of this age cutoff on turnout in 2020 as compared to past election cycles.

### Overview of Texas and Indiana age cutoff policies

In Texas and Indiana, voters under the age of 65 on Election Day must provide a valid excuse to vote absentee, while voters age 65 or older on Election Day may apply for an absentee ballot without providing an excuse. Common excuses for requesting an absentee ballot include a disability or a planned absence from one's county on Election Day (see section S2 in the Supplementary Materials for further details). We focus on Texas and Indiana because they maintained the cutoff at age 65 for voting absentee without an excuse for the general election and report voter date of birth publicly in the voter file. Both Texas and Indiana implemented their age-65 eligibility rule long before our analysis period—Texas in 1975 and Indiana before 2002. By holding the policy constant over time, these states allow us to evaluate whether access to absentee voting increased turnout more in 2020, when some people were more concerned about voting in person, than in previous years.

## Graphical evidence shows large take-up of absentee voting yet no major turnout effect of vote-by-mail in 2020

First, we show graphical evidence that voters with access to no-excuse absentee voting used that vote mode at a noticeably higher rate during the pandemic in 2020 than in previous elections. Recall that no-excuse absentee voting was just one of several options available to voters, who also had the option of voting early in person or at their polling place on Election Day. The two left panels of Fig. 2 show the share of ballots cast that were cast absentee-by-mail across age, separately for the past three presidential elections in Texas and for 2020 in Indiana. As we see, 65-year-olds took advantage of being eligible to vote absentee in pre-COVID-19 elections (this is essentially a replication of the Meredith and Endter working paper referenced in our acknowledgments). In 2020, many more 65-year-olds took advantage of the ability to vote absentee: About 17% of ballots cast by 65-year-olds in the 2020 Texas general election were absentee votes. Because the age-based eligibility policy has not changed in either state since 2012, this pattern shows that voters appreciate the opportunity to vote absentee, especially during the pandemic. It also strongly suggests that many 64-year-olds would like to vote absentee but are not able to.

If the conventional wisdom about the 2020 election is right—that the expansion of vote by mail massively increased turnout and helped the Democrats—then we should see a noticeable increase in turnout for 65-year-olds, because of their ability to vote by mail. The two panels on the right of Fig. 2 show that this is not the case. Turnout looks almost identical for 65- and 64-year-olds in Texas and Indiana in 2020; there is no evidence at all for a jump in the figure. While 65-year-olds did avail themselves of their ability to vote by mail, there is no noticeable increase in their turnout compared to 64-year-olds.

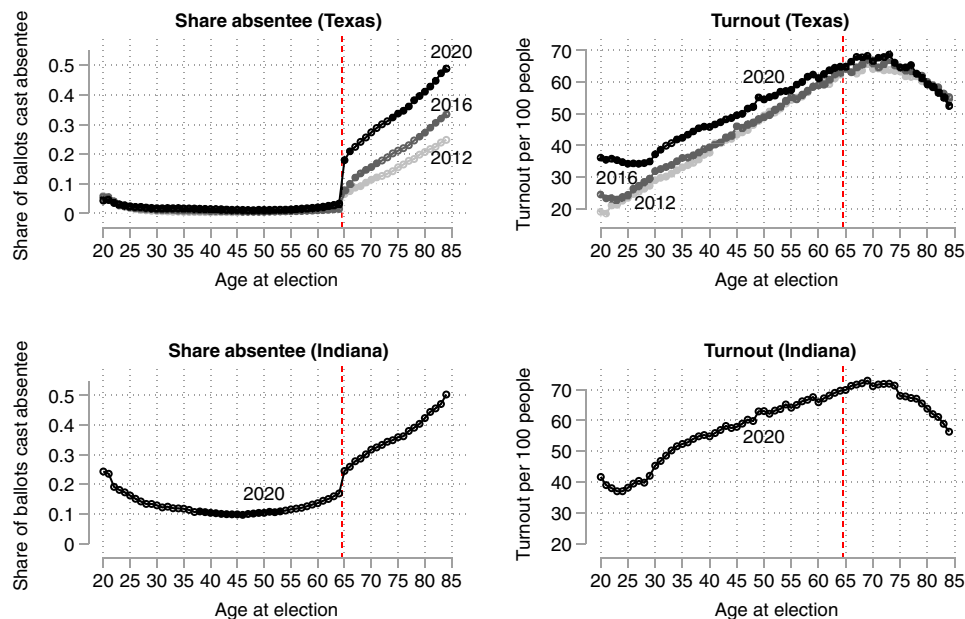
We now dig deeper to confirm this initial conclusion with formal statistical analyses. Table 1 presents our formal estimates of the

effects of Texas and Indiana's no-excuse absentee policy on overall turnout and vote mode using our simple differences estimator. Details on the specifications for these regressions can be found below in Materials and Methods.

The first row of the table shows the estimated jump for 65-year-olds compared to 64-year-olds (this quantity does not need to be added to any main effect to get the total effect, as the regression included a full set of interactions of the age 65 indicator and the year). In the first column, we see that the estimated increase in turnout for 65-year-olds, who are eligible to vote absentee without an excuse in Texas, is 0.02 percentage points—i.e., 2 basis points. The upper bound of the 95% confidence interval (with robust standard errors) for this effect is 0.26 percentage points. In the second column, we present a similar estimated effect of no-excuse absentee in Indiana, though the estimate is noisier. Both columns confirm our graphical evidence that suggested no major effect of vote-by-mail on turnout in 2020. As we discuss in Materials and Methods below, this estimate is also likely biased upward given that turnout increased with age, and we do not account for that in this analysis. Despite the salience of voting by mail in 2020, and despite the attention paid to the potential health risks of voting in person during the pandemic, the ability to vote by mail in Texas and Indiana had, at most, a quite modest effect on turnout.

The subsequent rows of the table report coefficient estimates for the effect in past years. As the table shows, we do find preliminary evidence that 65-year-olds are somewhat more likely to vote than 64-year-olds. This turnout gap between 64- and 65-year-olds is larger in midterm years; however, subsequent analyses below show that this pattern is inconsistent across estimation strategies, and we do not focus on it.

The remainder of the table breaks down this overall turnout gap into its constituent parts, studying the three mutually exclusive and exhaustive voting modes in Texas and Indiana—absentee voting,



**Fig. 2. Absentee voting and turnout across age and elections in Texas and Indiana.** In Texas and Indiana, only voters aged 65 or older can vote absentee without providing an excuse. This creates a large and discontinuous increase in voting absentee for 65-year-olds, which grew markedly in 2020 during the pandemic. Yet, turnout does not increase discontinuously between age 64 and 65, implying that the discontinuous increase in absentee voting is offset by a reduction in other modes.

**Table 1. Effect of no-excuse absentee voting on turnout and vote mode, Texas and Indiana General Elections.** Robust standard errors in parentheses. Unit of observation is an individual by year. Indianans and 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. Data on turnout and vote mode in Texas covers all presidential and mid-term year elections between 2012 and 2020. Data on turnout in Indiana covers the 2018 and 2020 elections. Data on different vote modes in Indiana only covers the 2020 election.

State	Overall turnout		Absentee voting		Early in person		Election Day in person	
	Pr(voted) (0–100%)		Pr(absentee) (0–100%)		Pr(early) (0–100%)		Pr(elec. day) (0–100%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	TX	IN	TX	IN	TX	IN	TX	IN
No-excuse (Age = 65) × 2020	0.02 (0.12)	0.25 (0.22)	9.50 (0.06)	5.34 (0.17)	-8.81 (0.13)	-3.24 (0.23)	-0.67 (0.06)	-1.85 (0.20)
No-excuse (Age = 65) × 2018	2.31 (0.13)	1.13 (0.24)	4.42 (0.04)		-1.60 (0.13)		-0.51 (0.09)	
No-excuse (Age = 65) × 2016	1.21 (0.13)		4.05 (0.05)		-2.20 (0.14)		-0.65 (0.09)	
No-excuse (Age = 65) × 2014	2.86 (0.14)		3.91 (0.04)		-0.54 (0.13)		-0.51 (0.11)	
No-excuse (Age = 65) × 2012	1.92 (0.14)		3.25 (0.04)		-0.99 (0.14)		-0.34 (0.10)	
2020	2.52 (0.13)	8.01 (0.23)	1.21 (0.03)		11.64 (0.14)		-10.33 (0.08)	
2018	-4.26 (0.14)		-0.26 (0.02)		-0.92 (0.14)		-3.07 (0.10)	
2016	0.61 (0.14)		0.03 (0.03)		4.10 (0.14)		-3.52 (0.10)	
2014	-19.41 (0.14)		-0.58 (0.02)		-19.43 (0.13)		0.59 (0.11)	
Intercept (mean)	62.34	61.66	0.93	11.79	45.68	34.71	15.74	23.16
Intercept year	2012	2018	2012	2020	2012	2020	2012	2020
# Obs	2,645,223	324,230	2,645,223	167,322	2,645,223	167,322	2,645,223	167,322

voting early in person, and voting on Election Day in person. These three estimates by construction sum to the estimate on overall turnout.

Looking across the columns, it is evident that being old enough to vote by mail in 2020 led to noticeably higher rates of voting by mail (columns 3 and 4) but that nearly all of this increase came from a decrease in voting early in person (columns 5 and 6) and voting in person on Election Day (columns 7 and 8). While rates of absentee voting increased by approximately 9.5 percentage points in Texas and 5.3 percentage points in Indiana, rates of early in-person voting decreased by roughly 8.8 percentage points in Texas and 3.4 percentage points in Indiana, and rates of in-person voting on Election Day decreased by roughly 0.7 percentage points in Texas and 1.85 percentage points in Indiana. Hence, almost all of the effect of eligibility on voting absentee came from voters who would have otherwise voted in person early or on Election Day, and this is an important part of why the policy appears to have no effect on turnout during the pandemic.

The similarly limited effect of no-excuse absentee on 2020 turnout in Texas and Indiana is especially notable given how different

voting patterns are in Texas and Indiana. In Texas, an unusually large share of voters vote early in person—57% of 64-year-olds in 2020—and many fewer vote in person on Election Day—5% of 64-year-olds in 2020. Meanwhile, in Indiana, 35% of 64-year-olds voted early in person in 2020 and 23% voted in person.

To guard against concerns about possible divergent trends over time, we investigate parallel trends before 2020 in Texas in section S6 in the Supplementary Materials. We also report a version of the main specification restricted to 2018 and 2020. We also report results from a specification with county-by-year fixed effects in section S10 in the Supplementary Materials. These results leave our main conclusions unchanged.

The estimates above present the simplest and most straightforward way to analyze the effects of Texas’s and Indiana’s age cutoff on voting by mail and turnout. However, because age and turnout are correlated [see Fig. 2 and (22, 23)], overall comparisons of 64- and 65-year-olds risks confusing the effect of absentee voting eligibility with the simple fact that 65-year-olds are a year older than 64-year-olds. Further, a number of life events occur and government benefits become available around age 65 that could further

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increase or decrease voter participation (24, 25). This upward bias is probably not large and is unlikely to affect the 2020 analysis much, because we found a non-effect on turnout in 2020 without accounting for it, but it is important to try to get the best estimate we can, and it is particularly important for estimates for prior years, where we did find positive estimates in the analysis above.

To address this concern, we pursue three strategies. First, we use a day-level regression discontinuity design to estimate the effect of being born just in time to not need an excuse to vote absentee. Second, we use a year-level regression discontinuity design to estimate using the data we prepared for our earlier analyses. Last, we use a difference-in-differences design to estimate the difference between the effect in 2020 vs previous presidential years. We focus these analyses on Texas where we have the necessary data to conduct all of them. We discuss these analyses and provide additional implementation details in sections S7 to S9 in the Supplementary Materials.

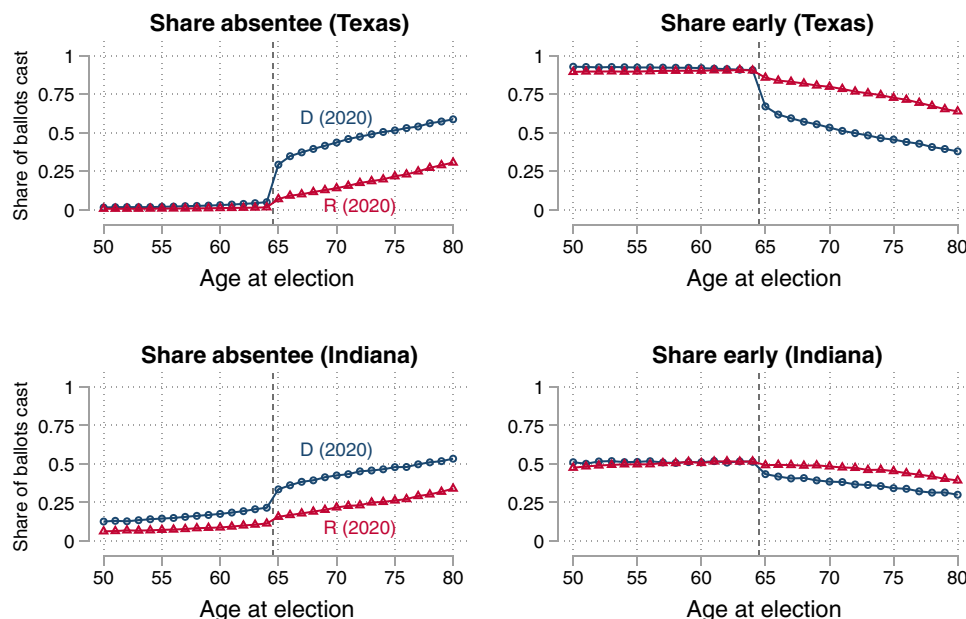
Across all three analyses, we find the same pattern—access to absentee voting without an excuse did not make 65-year-olds more likely to participate in 2020. The effect of no-excuse absentee eligibility is normally small and was likely smaller in 2020 than in previous years, just as in our main analysis.

In section S12 in the Supplementary Materials, we also evaluate the concern that our 2020 estimates may be biased downward because of increased COVID fear among people categorized as high risk by public health authorities, because this categorization in some cases applied to 65-year-olds and not to 64-year-olds. We find that, in states that permit all eligible citizens to vote absentee without an excuse, 65-year-olds are not more likely to vote absentee than 64-year-olds. This suggests that the psychological effect of being categorized as high risk was not a major factor in motivating people to vote by mail.

### Effects of absentee eligibility for low versus 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 section S11 in the Supplementary Materials, we focus our Texas analysis on low-propensity voters. We find that extending no-excuse absentee voting did not make low-propensity voters more likely to turn out in 2020. This 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.

While this analysis helps us generalize from 65-year-olds to other age groups, there may be differences between statewide extensions of no-excuse absentee and age-based cutoffs that our low-propensity voter analysis cannot account for. For example, campaigns and public officials may do more to make the eligible public aware of absentee policies when all citizens are eligible. Moreover, expanding opportunities to vote by mail was a politically charged issue in 2020; states that changed their laws could have made the issue more politicized than in Indiana and Texas, where no expansion was ultimately pursued. On the other hand, the no-excuse absentee policy in Indiana and Texas was widely covered and featured major



**Fig. 3. Share of ballots cast absentee, by age, and party, 2020 Texas and Indiana General Elections.** The partisan gap in absentee voting is evident in both Texas and Indiana. The greater share of Democrats adopting absentee voting is offset by a smaller share of Democrats using early in-person voting. We define party based on a voter's most recent partisan primary or runoff participation. In section S13.2 in the Supplementary Materials, we show that this partisan gap in substitution patterns more than doubled between 2016 and 2020 in Texas. We do not extend this supplementary analysis to Indiana, as Indiana data on vote mode is only available for 2020.

legal controversies and court challenges, and political campaigns from both parties put in considerable effort to make eligible voters aware of it (26, 27). In addition, if this were an important difference, we would expect to see positive effects on turnout in our national analysis. Given that we consistently find that no-excuse absentee policies have minimal effects on turnout, even for low-propensity voters or when the policy is rolled out statewide, we conclude that extending no-excuse absentee voting to all citizens likely would not have markedly increased turnout in 2020.

### Partisan effects of vote-by-mail

One of the major narratives around vote-by-mail in 2020 is that it helped Democrats electorally in a big way—more Democrats embraced absentee voting, while Republicans opposed it and chose to vote in person instead (28, 29). On the basis of our main findings, we would not expect that partisan use of vote-by-mail would be an important factor in election outcomes because most of its use was offset by a drop in in-person voting. Still, this could mask an increase in Democrats voting by mail and a decrease in Republicans voting in person, tilting the electorate toward Democrats. While we find strong evidence that Democrats were more likely to take advantage of their absentee voting eligibility, this did not meaningfully change the composition of the electorate in Texas and Indiana in 2020 compared to previous elections.

Figure 3 compares the rates of absentee voting, as a proportion of all ballots cast, across age and party for 2020 in Texas and Indiana. In the two left panels, we see a much greater jump in adoption among Democrats than Republicans in 2020 in both Texas and Indiana.

In the two right panels, we see that Democrats who are eligible to vote absentee in 2020 because of their age were noticeably less likely to vote early in person. Meanwhile, Republicans, who were less likely to take up absentee voting when eligible, were only slightly less likely to vote early in person if their age made them eligible to vote absentee.

As we saw in our main findings, the higher rate of absentee voting among eligible Democrats is offset by the lower rates of in-person voting, implying that the extension of no-excuse absentee voting did not markedly benefit one party or the other. In table S9 in the Supplementary Materials, we offer formal estimates from a regression discontinuity design that reach the same conclusion. Together, we can easily dismiss hyperbolic claims that no-excuse absentee voting will usher in an era of permanent Democratic majorities. However, in a state like Georgia, where Biden defeated Trump by roughly one-quarter of one percentage point, we have no way of ruling out the possibility that no-excuse absentee voting could have tipped the difference one way or the other; we simply lack the statistical power to assess this one way or the other.

### MATERIALS AND METHODS

In this section, we briefly discuss the details regarding the administrative data from Indiana and Texas that we collected and analyzed, and we explain the technical details of the regressions estimated above.

#### Administrative data on voting in Texas and Indiana

We construct a new dataset on Texas elections before and during COVID-19 from a few main sources. First, we acquired the Texas voter file from the Texas Department of Elections. Each row in the

file is a voter, and it includes their state-issued voter ID number, name, date of birth, county, and turnout in the 2020 general election. Texas also records vote mode, meaning we can observe whether each person voted absentee-by-mail, early in person, or at their polling place on Election Day. We supplement the 2020 file with files produced immediately after each even-year primary, runoff, and general election from 2012 to 2018 from Ryan Data & Research, a company that has maintained the list of Texas registrants over time, compiled from Texas Department of Elections voter files. With these additional files, we avoid conditioning on those who remain registered in 2020, sidestepping a common source of bias in voter file studies (30).

We build a similar dataset on Indiana elections, but it is more limited in a few important ways. First, we only have access to voter files collected following the 2018 and 2020 elections, both provided by the political data vendor L2. Second, the 2018 file does not report vote mode, so we cannot measure how use of vote mode changes over time in Indiana. Texas and Indiana do not have traditional party registration systems, so we define a voter's party affiliation based on each voter's most recent participation in a partisan primary or primary runoff election.

The voter file in any given year is limited to the citizens registered at the time of the election. If access to no-excuse absentee voting makes a citizen more likely to register and more likely to vote, conditioning on registration will understate the effect of a no-excuse absentee policy on voter turnout. We address this by using census population estimates to identify the number of residents in each county by age. We subtract the number of voters in a county by age from the estimated number of residents to calculate the number of nonvoters for a given election.

We compute the number of residents in a county by age using county-age level census population estimates from the National Cancer Institute's Surveillance, Epidemiology, and End Results Program. The census conducts this survey in the summer, so they capture the number of residents by age in a county as of July of the estimate year. All of the elections we study are held 4 months later in early November. While this is a subtle difference, because of the distribution of birthdays within a given year, sometimes the age distribution shifts between July and November. We use national year and month of birth population estimates to account for these changes in the age distribution, adjusting the number of residents to account for the additional 4 months of aging. In addition, at the time of writing, the census has not released county-age population estimates for 2019 and 2020, so we assume that all residents aged 2 years between 2018 and 2020, ignoring mortality for this last year. Last, because these data are top-coded at age 85, we restrict our analyses to voters under the age of 85. Once we have population estimates by year, age, and county, we have a row in our dataset for each voting and nonvoting county resident by age and year.

#### Using the age cutoff to estimate the effect of no-excuse absentee voting

To estimate the effect of no-excuse absentee policies on turnout, we would like to carry out an experiment where some voters have access to voting absentee without an excuse, while other similar voters, voting in the same election, do not. To approximate this ideal experiment, we take advantage of an age discontinuity in Texas and Indiana, where 65-year-olds can vote absentee without an excuse, while 64-year-olds must provide an excuse to vote absentee.

We estimate the discontinuity using four different strategies. We begin with the simplest: comparing the turnout rate and vote mode choices of the average 64-year-old to the average 65-year-old. We make these comparisons using regressions of the form

$$Y_{iat} = \beta_t(\text{Age} = 65)_{iat} + \delta_t + \epsilon_{iat} \quad (1)$$

where  $Y$  is the outcome—voted, voted absentee, or voted early in person, for example—for individual  $i$ , in age bin  $a$ , in an election at time  $t$ . Because we subset to voters age 64 and 65 at the time of each election, there are only two age bins in the regressions. The  $\beta_t$  term represents election-specific gaps between 65- and 64-year-olds, and  $\delta_t$  represents election fixed effects.

The coefficient of interest,  $\beta_{2020}$ , tells us how much having access to no-excuse absentee increases turnout in 2020, during the pandemic. In this simple differences comparison,  $\beta_{2020}$  represents this quantity if the turnout rate for 64- and 65-year-olds would be identical had 65-year-olds not been eligible to vote absentee. We zoom in on 64- and 65-year-olds such that this comparison is more plausible.

We expect that 65-year-olds will typically be slightly more likely to participate in any election. We address this by using multiple difference-in-differences and regression discontinuity analyses to evaluate the robustness of our main findings to alternative identification assumptions.

## DISCUSSION

The 2020 election brought extraordinary challenges to the American electoral system. The dramatic expansion of vote-by-mail in response to the COVID-19 pandemic, the sharp increase in partisan polarization concerning questions of election administration, and the unprecedented refusal of former President Trump to acknowledge the election results have all contributed to a crisis of confidence in American democracy. This crisis has triggered an ongoing debate about how the United States should administer its elections and about what role absentee voting should play going forward.

A conventional wisdom about vote-by-mail in the 2020 election has already congealed and is setting the terms of this debate. By this account, the expansion of vote-by-mail triggered widespread adoption of absentee voting, which in turn massively increased turnout, which in turn played a big role in helping the Democratic Party. Both parties have accepted this narrative and are engaged in rhetorical combat on these terms.

The problem with this conventional wisdom is that it is based on a fallacy. It is true that more people voted by mail than ever before in the 2020 election. It is also true that turnout was extraordinarily high in 2020. In addition, it is also true that the Democratic Party won the Presidency and the Senate and maintained control of the House. However, these facts do not imply that voting by mail increased turnout or helped the Democrats in dramatic ways.

As we have shown, the major effect of expanding absentee voting is to change how people vote, not whether they vote. Simply observing that many people voted by mail in 2020 and that many of the people who voted by mail were Democrats is insufficient to conclude that vote-by-mail helped the Democrats; many of these voters would probably have voted in person had they not had the opportunity to vote absentee instead.

Using nationwide data, we have shown that states that implemented absentee voting for the 2020 election saw no obvious, dramatic increases in turnout relative to states that did not. Turnout was up across the board in 2020 and increased markedly in states that did not expand their absentee voting programs at all.

Using data from Texas and Indiana, we offered a more rigorous evaluation of the effects of absentee voting, taking advantage of a natural experiment where 65-year-olds could vote absentee without an excuse while 64-year-olds could not. This rule led many more 65-year-olds to vote absentee than 64-year-olds, but it did not make them turn out at higher rates. Turnout was up most for younger voters who could not vote absentee without an excuse; in Texas, turnout was up most for voters in their 20s, almost none of whom voted absentee. Moreover, the proportion of voting 65-year-olds in the 2020 election who were Democrats was not noticeably higher than the proportion of voting 64-year-olds who were Democrats, despite the large gap in absentee voting between the two age groups.

The results of our paper do not offer a clear recommendation for the policy debate around vote-by-mail, but they do suggest that both sides of the debate are relying on flawed logic. Vote-by-mail is an important policy that voters seem to like using, and it may be a particularly important tool during the pandemic. Despite all that, and despite the extraordinary circumstances of the 2020 election, vote-by-mail's effect on turnout and on partisan outcomes is muted, just as research before the pandemic would have suggested.

Documenting that the effect of vote-by-mail on turnout is so muted even during a historic pandemic is important for our theories of why people vote. Even during COVID-19, the chance to cast your vote without having to go to the polls in person made little difference for participation. Instead, turnout increased markedly everywhere because voters on both sides cared more than usual about the outcome. This does not mean that the costs of voting are never important, but it does suggest that expanding participation requires understanding how to engage voters and make them interested in the election more than it requires focusing on the details of different convenience voting reforms.

## SUPPLEMENTARY MATERIALS

Supplementary material for this article is available at <https://science.org/doi/10.1126/sciadv.abk1755>

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

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