Mail Voting and Minority Turnout: Evidence from Ohio

Michael Auslen, Master in Public Policy, 2019
John F. Kennedy School of Government, Harvard University

Policy Analysis Exercise prepared for:
Amber McReynolds, Executive Director, National Vote at Home Institute

Thomas Patterson, Harvard Kennedy School, PAC seminar professor
Steve Jarding, Harvard Kennedy School, advisor

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This PAE reflects the views of the author and should not be viewed as representing the views of the PAE’s external client(s), nor those of Harvard University or any of its faculty.

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Table of Contents

Executive Summary .......................................................................................................................... 5
Background .................................................................................................................................. 6
America's Turnout Problem ........................................................................................................... 6
Mail Voting: A Solution? .................................................................................................................. 7
Client & Research Motivation ....................................................................................................... 9
Vote at Home Reforms and Race: Existing Literature ................................................................. 11
Elections & Reform in Ohio ............................................................................................................ 13
Ohio’s 2005 Election Reform: No-Excuse Absentee Voting ......................................................... 14
How Mail Voting in Ohio Works .................................................................................................. 15
Mail Voting Encouragement Since 2012 ...................................................................................... 16
Methodology & Notes on Data ...................................................................................................... 17
Data Sources ................................................................................................................................. 18
Imputing Race ............................................................................................................................... 20
Analysis ......................................................................................................................................... 22
County-Level Impact .................................................................................................................... 22
No-Excuse Absentee Voting Policy ............................................................................................... 24
Absentee Voting Encouragement Mailer ....................................................................................... 27
Limitations to Interpretation ......................................................................................................... 28
Lessons & Recommendations ...................................................................................................... 31
Lesson 1: States Should Pursue Mail Voting Access ................................................................. 31
Lesson 2: Voters of Color May Benefit from Absentee Voting .................................................. 31
Lesson 3: Encouraging Mail Voting Increases Absentee Turnout .............................................. 32
Lesson 4: Understanding Voting Changes Requires Better Data ............................................... 32
Appendix A: References ............................................................................................................... 34
Appendix B: Absentee Ballot Application ..................................................................................... 39
Appendix C: Logit Model Outputs ............................................................................................... 40
Appendix D: Alternative (Linear) Models of Voter Turnout ....................................................... 42
Executive Summary

In response to routinely low levels of voter turnout in the United States, reformers across the political spectrum have turned to policy changes meant to make participating in democracy easier. Chief among them are “vote-at-home” programs that allow elections to be conducted by mail.

In 2005, Ohio enacted one such policy—a no-excuse absentee voting law that allows any registered voter to request and cast a mail ballot in any election. The Ohio Secretary of State bolstered the mail-voting program in 2012 by sending every registered voter an absentee ballot application in the mail.

I present evidence that greater access to mail ballots is associated with greater county-level voter turnout, including in counties with larger Black and Hispanic populations. Using individual voter records from Hamilton County, Ohio, I also find that individual-level probabilities of participation in an election are higher when voters access mail balloting. Finally, I find that when the state encourages mail voting, voters are more likely to take part in both the mail balloting program and the election itself.

Studying election administration data presents several challenges that can limit the bounds of analysis. Despite these limitations, the Ohio case is compelling because it is a swing state, has a high degree of diversity, and is located in the Midwest, where little research on the effect of mail voting has been published.

My findings have wide-ranging implications for states and advocates hoping to increase participation in American democracy:

1. Mail voting should be a high priority for states working to simplify voting and help address America’s low-turnout problem.
2. If given the opportunity, voters of all races will turn to convenient, vote-at-home options.
3. State encouragement of mail voting is associated with increased use of the program and with increased participation in elections in general.
4. States’, advocates’, and researchers’ ability to understand the impact of future election law changes depends on the maintenance of high-quality data in the present.
Background

America’s Turnout Problem

Voter participation in the United States lags far behind other developed democracies. This is despite consistent—albeit slow—gains in in presidential election turnout over the last two decades: 51.7% of eligible adults voted in 1996, compared to 60.1% in 2016.¹

The highest-participation US presidential election in the modern era was in 1960 when 63.8% of eligible adults participated, and the highest-participation midterm was in 2018 (50.3%).² By comparison, recent elections in other developed democracies have experienced much higher levels of turnout.³

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A number of factors could explain this low turnout, including structural problems such as the rules surrounding elections and barriers to participation.\(^4\)

This PAE is all about how we vote and the potential that administrative changes and new options for casting ballots have to increase participation in American democracy.

Mail Voting: A Solution?

In recent years, legislators, election administrators, and activists have zeroed in on the methods by which we vote to help solve the low-turnout problem in American democracy. Their straightforward theory is that by integrating the electoral process more dearly with citizens’ lives—generally removing barriers and making voting simpler—policymakers can increase the likelihood that individuals will participate in democracy, especially among populations that are less likely to vote in the first place.

Among the most promising developments has been the loosening of mail voting laws. Historically, voting has occurred in-person at a local precinct on a prescribed Election Day. But more and more, states and counties have turned to the postal service to upend these constraints. Laws vary significantly by state, but the spread of mail voting has contributed to a shift such that in 2018, fewer than 60% of votes in the United States were cast in-person on Election Day, and

more than 30% were cast by mail. In general, voting laws tend to take one of three forms as relates to mail balloting:

- **All-Mail Voting (also called Vote-by-Mail):** Elections are conducted entirely via mail. All registered voters receive a ballot at their home address weeks before the election with the option to return it via mail or drop it off in-person. These states also tend to allow for walk-in, in-person voting during major general elections. Three states currently run all elections by mail: Colorado, Oregon, and Washington. California and Utah will soon allow counties the option of running elections by mail, which is likely a transitional step toward an all-mail system statewide.

- **No-Excuse Absentee/Mail Voting:** Increasingly, states allow voters to register as absentee or mail voters regardless of whether they will be unable to vote in-person on Election Day. Twenty-eight states and Washington, DC, have passed no-excuse absentee reforms, which increase the options available to voters and reduce the barriers to participating in an election. Eight of those states and Washington, DC, have gone further to create a “permanent absentee voter” status, which allows voters to request a ballot be mailed to them in every election going forward, rather than having to fill out a ballot request form each year. This has the effect of reducing paperwork for voters and election administrators—thereby reducing costs—and eliminates the expectation that voters remember to request a ballot each year.

- **In-Person-Only Voting:** Eleven states allow only in-person voting at a precinct on Election Day with exceptions made for those who can document that they will be unable to participate, usually because they will be out of town or have a disability that prevents them from traveling to a polling place. An additional eight states allow early voting in-person—generally at city hall or the county clerk’s office—but offer no option to vote at home.

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7 National Vote at Home Institute, “About Us.”
9 States with permanent mail ballot programs are Arizona, California, Kansas, Montana, Nevada, New Jersey, Utah, and Wisconsin; National Vote at Home Institute, “About Us.”
10 National Conference of State Legislatures, “Absentee and Early Voting.”
Laws vary among states and can even change within a given state depending upon the particulars of each election. For example, many states allow all-mail elections for local referenda or in precincts with only a handful of registered voters.¹¹

Client and Research Motivation

About the National Vote at Home Institute

The National Vote at Home Institute is a nonpartisan, 501(c)(3) organization that advocates for vote-by-mail programs in the states. It serves as a resource to policymakers and elected officials, generates research, and communicates information about the benefits of mail voting to the public.¹²

The Institute’s mission is motivated by the significant benefits they find from all-mail voting (both in research and in practice). Those include election security, greater voter choice, and reduction in barriers to participation.

Research Questions

Considerable political science research (including several studies funded by the National Vote at Home Institute) has established evidence that allowing mail voting increases voter turnout.¹³ However, there remain disagreements on several relevant points: the degree to which mail-voting policies affect turnout and the extent to which particular subsets of the population are helped by mail-voting policies.

This PAE is concerned with three primary questions:

1. Does access to a mail ballot increase voter turnout?
2. Are voters of color more likely to vote under mail balloting programs?
3. Does state encouragement of mail voting increase likelihood of participation?

Existing research posits a wide range of answers to the first question, and the estimation of effect understandably varies depending on the specific policy in question and the election years being studied. One meta-analysis of existing literature found that estimates of the impact of all-mail

¹¹ National Vote at Home Institute, “Vote @ Home Across the States,” October 2018, https://docs.wixstatic.com/ugd/ef45f5_390566719f9d481fbd77222961b0545.pdf.
Mail Voting and Minority Turnout: Evidence from Ohio

elections has ranged from a 3.9-percentage-point decrease to an 11.0-point increase in turnout.14 Studies of no-excuse ballots similarly vary.15

As to the question of who is helped by mail-voting policies, there is even greater disagreement. Again, much of the research to date has been on all-mail elections, which provide a much starker change—and, therefore, experiment—than the no-excuse absentee voting policies I examine here.

Several social scientists have established that no-excuse absentee policies are particularly useful for people with disabilities and the elderly, as they simplify the processes to receive a ballot at home and ensure that voters with limited mobility are not forced to go in-person to a polling place.16

Research on all-mail elections shows wide variation in the policy’s interaction with race. Some studies of Oregon’s and Washington’s policy changes suggest not only that turnout among minority voters increased but that it increased to a greater degree than White voters. That is, the overall share of voters of color in the electorate increased.17 On the other hand, others have found that increases in turnout by White voters far exceed those of voters of color; the so-called “perverse consequences” of election reform mean that low-propensity voters turn out even less than they would otherwise have done.18 Still others find that any turnout gains from mail-voting policies dissipate after a few years, suggesting that they are brought about not by increased access to voting but by novelty.19

On the third research question, a growing body of field experiments has established that voter participation can be significantly impacted by reminders, encouragements, and other social pressures to cast a ballot.20 Most of this work has centered on the work of campaigns and civil society groups to turn out voters.

16 Miller and Powell, “Overcoming Voting Obstacles.”
My research adds more information to this active and growing field of research and policy development, and it does so using one of the most significant states in modern US politics.

**Vote-at-Home Reforms and Race: Existing Literature**

Much of the existing literature on race and mail-voting policies has focused on all-mail elections, which means that there is little research that specifically talks about the effect that the option of voting by mail may have on minority voter turnout.

I include literature on both policies in this review because I expect that the impacts of no-excuse absentee voting policies will be directionally the same as all-mail elections but at a lower magnitude.\(^{21}\) No-excuse absentee voting can be viewed as a middle-ground between vote-by-mail and traditional Election Day voting, and it can easily be combined with in-person early voting. Theoretically, we might expect it to reduce the costs of voting for those people who want to vote and plan ahead enough to request an absentee ballot or sign up as permanent absentee voters.

As much as the literature disagrees about the effect of various mail-voting policies on turnout overall, there is even less consensus as to whether minority voters are substantially helped or harmed by such reforms.

Existing work on the subject is concerned with two statistics that represent the participation of voters of color in elections:

- The number of minority voters who cast a ballot, and
- The share of the overall vote that is cast by voters of color (that is, their relative influence in the election).\(^ {22}\)

There are essentially three interpretations of the effect of mail-voting policies on voters of color.

The first argues that increased access to mail voting corresponds with more voters of color casting a ballot and an increase in the share of the electorate made up of minority voters. Some studies of all-mail elections, in particular, tend to show these results.\(^ {23}\) National Vote at Home Institute research has found similar results for the vote-by-mail programs in Colorado and select


\(^{22}\) Put mathematically, \( \frac{\text{Number of minority ballots cast}}{\text{Total number of ballots cast}} \). This value remains constant if the share of minority votes increases at the same rate as the share of White votes, and it falls if minority voter participation increases but White voter participation increases at a greater level.

\(^{23}\) Southwell, “Five Years Later”; Gerber, Huber, and Hill, “Identifying the Effect of All-Mail Elections on Turnout.”
counties in Utah that have shifted to all-mail voting. In both cases, the turnout benefits from all-mail voting policies were greatest among those who are less likely to participate—namely younger, lower-income, and minority voters. However, there has been little research on the effect of no-excuse absentee voting on turnout among minority voters in particular.

A second set of researchers finds that the introduction of no-excuse absentee voting does not change participation broadly. This camp has two main arguments: People decide whether or not to vote first and then decide how they will cast a ballot. As a result, this subset of the literature generally finds no impact on voters of color (or other groups). Their second argument is that changes in policy alone do not explain changes in voter behavior; policy changes also require voter mobilization efforts. This is logical—and consistent with much of the other literature in political behavior—but is also implicit in how elections work. Campaigns and other political organizations and good-government groups are incentivized to use the laws on the books to encourage their supporters to vote. So, while a legal change alone does may not directly result in a participatory impact, the associated change in campaign behavior can be viewed as a part of the policy change.

Much of the literature falls into a final group that finds greater access to mail voting increases the number of minority voters who participate, while at the same time reducing their representation as a share of the electorate. Put bluntly, more Black and Hispanic voters may participate when elections shift toward the mail, but far more White voters do, reflecting the existing biases of the American political system, which tends to overrepresent White, higher-income, and older voters.

This variation in findings reflects both the difficulty in ascertaining the effect of particular policies on elections that do not occur in a vacuum, the newness of this line of policy and political research, and the limited access to high-quality administrative data that can be analyzed. This PAE contributes to the existing literature, though it, too, faces some of the same data-related challenges.

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25 Gronke et al., “Convenience Voting.”
26 Oliver, “The Effects of Eligibility Restrictions and Party Activity on Absentee Voting and Overall Turnout.”
27 Berinsky, “The Perverse Consequences of Electoral Reform in the United States.”
Elections and Reform in Ohio

Why Ohio?

My analysis focuses entirely on Ohio, which has been a no-excuse absentee state since 2005. Beginning in 2012, the state also sent absentee ballot applications to every voter. These two policy changes help to establish useful natural experiments that can be exploited using administrative data. However, the client is interested in Ohio for several other reasons:

- As a large, diverse swing state with several major cities and media markets, there are major, national implications when Ohio changes its election. Increases in turnout overall and among individual racial groups or other subsets of the population could have dramatic impacts on the outcome of presidential elections and the makeup of Congress.

Ohio’s large population helps to make this research doable, and a primary question—the impact of mail-voting reforms on minority turnout—necessitates a diverse population.

- Ohio’s geographic location in the Midwest is of particular interest to the client. The most expansive mail-voting reform efforts have occurred largely in Western states. All three all-mail election states (Colorado, Oregon, and Washington) and six of the eight states with permanent absentee voting (Arizona, California, Kansas, Montana, Nevada, and Utah) are west of the Mississippi River. As a result, the National Vote at Home Institute is interested in building momentum toward more policy changes in the Midwest.

- There is considerable evidence that social pressure and encouragement to vote increases probability of participation. A wide-ranging series of field experiments by Gerber, Green, and their collaborators find that various voter contacts from nonpartisan and partisan groups alike impact voters’ decision to cast a ballot. The 2012 decision by the Ohio

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32 National Conference of State Legislatures, “Absentee and Early Voting.”

Secretary of State to send absentee ballot applications to every voter affords an opportunity to investigate how encouragement by government affects both the decision to participate and the decision to participate via a particular voting method.

Ohio’s 2005 Election Reform: No-Excuse Absentee Voting

In its 2005 session, the Ohio Legislature passed HB 234, which allowed any voter to cast an absentee ballot. Governor Bob Taft signed it into law on October 28, 2005, and it went into effect for the first time in the 2006 election. The law also mandated that absentee voters provide a valid driver’s license number, social security number, or copy of a photo ID, which drew criticism from some election reformers at the time the law was passed.

That same legislative session, lawmakers passed another, more sweeping set of reforms (HB 3), which primarily consisted of technical changes to election laws. The legislation addressed issues related to provisional ballots, created a statewide voter file (as opposed to the status quo of county-held records), and regulated the selection of precinct polling places. Despite these other provisions, the most publicly visible and voter-focused change to election law that year was the HB 234 no-excuse absentee voter law.

Impetus for Reform: Voting Before 2005

Before 2005, Ohio required that voters cast ballots in-person on Election Day—unless they had an excuse that made them unable to vote in their home precinct on (e.g. members of the military stationed outside of the county, seniors older than 62 years old, and those with religious obligations on Election Day). As a result, very few ballots were cast absentee prior to 2005.

After the 2004 presidential election, which was characterized by long lines in Ohio, the state Legislature considered new laws meant to ease voting access.\textsuperscript{39} Central among them was a no-excuse absentee voting policy. (At the time, 24 other states had passed similar laws.)\textsuperscript{40}

### How Mail Voting in Ohio Works

Ohio voters who wish to cast a mail ballot must request one from their county’s board of elections. Because Ohio does not have a permanent mail voter option, voters must submit an application for absentee ballot every election cycle.

The absentee ballot application is available from the state in both English and Spanish.\textsuperscript{41} It requires that voters provide basic identifying information, an address to which the ballot can be sent, and some form of identification (namely, an Ohio driver’s license number; the last four digits of a Social Security Number; or a photocopy of a current picture ID, bill, bank statement, or pay stub).

Voters can mail in their application under the deadlines below, or they can submit the absentee ballot request in-person and cast an early ballot in-person up until 2 p.m. the day before the election.\textsuperscript{42}

#### General Election Deadlines in Ohio

Voter registration deadline: 30 days before Election Day.\textsuperscript{43}

Boards of elections must receive absentee ballot application: noon, 3 days before Election Day.


\textsuperscript{41} A copy of the Ohio absentee voter application can be found below in Appendix B: Absentee Ballot Application.


Absentee ballots must be postmarked: Election Day.
Mailed absentee ballots must be received: 10 days after Election Day.

Mail Voting Encouragement Since 2012

In 2012, Ohio Secretary of State Jon Husted started the practice of mailing every registered voter an absentee ballot application.44 The office has followed this same process in subsequent general elections on congressional election cycles (i.e. 2012, 2014, 2016, and 2018).45 In order to receive an absentee ballot, voters must still fill out and submit the form to their county board of elections before the election.

Notably, this intervention increases awareness of the election, which political science research has shown may increase voter participation.46 But it does so at a higher cost than an all-mail election might. Sending an absentee ballot application to all 6.9 million active registered voters reportedly cost the state $1.6 million in 2012, funded by federal Help America Vote Act funds.47 For roughly the same cost, the state could send a ballot to every voter, thereby encouraging participation while reducing additional mailings and staffing in-person voting locations on Election Day. (Other states have seen cost savings associated with moving to an all-mail system.)48

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44 Higgs, “Secretary of State Jon Husted Intends to Send Absentee Applications to All Voters for the 2014 Election.”
46 Gerber and Green, “The Effects of Canvassing, Telephone Calls, and Direct Mail on Voter Turnout.”
47 Higgs, “Secretary of State Jon Husted Intends to Send Absentee Applications to All Voters for the 2014 Election.”
Methodology and Notes on Data

To estimate the impact of mail voting on the Ohio electorate, I use publicly available voter file data from the Ohio Secretary of State’s Office and the Hamilton County Board of Elections.49

Like much real-world political information collected by government agencies, these data are imperfect, and the treatment—access to mail ballots—is not perfectly randomized. To help ameliorate these problems, I use multiple methods to generate evidence about the impact of the relevant policy change on voter turnout generally as well as among racial minority voters. This approach is modeled from existing political science research on the effect of vote-by-mail reforms.50

As outlined above, I am concerned with two policy changes. First, the Ohio Legislature’s switch to no-excuse absentee voting in 2005.51 And second, the Secretary of State’s policy of mailing absentee ballot applications to all voters beginning with the 2012 election.52

For each of these policy changes, I conduct an individual-level analysis using the state’s voter registration database and county absentee voter lists to determine the change in voter behavior. The state voter file includes vote history as far back as the 2000 presidential election, and Hamilton County publishes an absentee voter list—including which voters cast a ballot by mail—beginning with the 2004 presidential election. Because the county is the third-most populous in Ohio (its county seat is Cincinnati), the voter file also includes 599,461 records.

Although I focus on Hamilton County for data access reasons, it is important to note that there are not other characteristics of the county that distinguish it from other communities in a way that would undermine my results. I expect that my findings would hold true in similar diverse urban counties.

A potential criticism of this sort of individual, historical analysis of contemporary data is that there may not be randomness in which voters move in and out of Hamilton County, which can cause problems outlined below in the “Limitations of Election Data” section. So, I also conduct an

50 E.g. Gerber, Huber, and Hill, “Identifying the Effect of All-Mail Elections on Turnout.”
52 Bischoff, “All Ohio Voters to Get Absentee Ballot Applications in Mail Soon.”
aggregated analysis using county-level turnout and absentee voting data published by the Ohio Secretary of State and augmented by US Census Bureau race statistics.

In each case, I first estimate the effect of the policy change on turnout generally and then on turnout among groups of racial minorities.

Data Sources

My analyses use data from four sources:

- **Ohio Voter File**: The voter file is a constantly updated record of all 8 million active and inactive registered voters in the state of Ohio. The state keeps no archive versions of the file, and Hamilton County does not maintain an archive either.\(^{53}\) (I use the file as available for download on the Secretary of State’s website on December 24, 2018.)\(^{54}\)

  The voter file includes the following relevant variables: voter name, state-issued voter identification number, date of birth, date of voter registration, address, party affiliation, and voter history (whether a ballot was cast) from 2000 to 2018.\(^{55}\)

  The statewide file is a combination of county-level records compiled by county election boards. Since 2005, the state has maintained a standardized database that ensures the same information is available for voters, regardless of where in the state they first registered (even if that county is not their current county of residence).\(^{56}\)

- **Hamilton County Absentee Voter List**: The state voter file includes vote history (which elections in which a given voter participated) but not the method by which voters’ ballots were cast (in-person or by mail). However, county boards of elections make a list of absentee voters available so that campaigns and other political groups can reach out to voters who will cast a ballot before Election Day.\(^{57}\) These records can be matched to the

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\(^{53}\) This was confirmed on several phone calls with Ohio Secretary of State’s Office and Hamilton County Board of Elections officials in January 2019.

\(^{54}\) While it is likely that some voters registered between the general election on November 6, 2018, and my download on December 24, 2018, there should have been no mass removals of voters by the state. Therefore, my data largely reflects the 2018 election’s voter list.

\(^{55}\) Full documentation of fields can be downloaded at the Secretary of State’s website: https://www6.sos.state.oh.us/ords/f?p=111:1.


\(^{57}\) See, e.g., Hamilton County Board of Elections, “Absentee Voters List.”
voter file to augment existing data and reflect which voters cast a mail ballot in each election.58

Practices for maintaining absentee voter lists vary widely among Ohio’s 88 counties. Many large counties, including Hamilton, publish several years of back data, readily available for download online. However, smaller counties tend to make only one to three recent elections’ absentee voter lists available, and some make data available upon request. Because of this variation, I cannot accurately augment the entire statewide voter file to reflect absentee voting patterns and am instead forced to narrow the scope of this analysis to a single county—in this case, Hamilton.59

- **Ohio Turnout Data:** Ohio publishes county-level turnout data at least as far back as the mid-1990s. Beginning in 2006—after passing no-excuse mail voting legislation—the state began publishing aggregated county data on absentee ballots.

  Turnout data as aggregated and reported by the Secretary of State include the county name, the total number of voters registered in the precinct, the number of ballots cast in the county in a given election, and (beginning in 2006) the number of ballots cast by mail.

- **US Census Bureau:** I use Census Bureau population estimates for two components of the analysis. First, for the aggregate analysis, Census data feed into county-level variables for racial breakdown. Specifically, I use total population and racial/ethnic group counts (non-Hispanic White, non-Hispanic Black, and Hispanic regardless of race) among the voting-age population.

  Second, Census data are at the core of the method I use to impute race for individual-level data, which I explain in greater detail below.

Collectively, these data present a relatively comprehensive record of voter behavior in Ohio during the years relevant to the policy question at hand. They permit an analysis that isolates the effect of the policy changes to increase the permissibility and encourage the use of mail voting.

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58 I matched observations in the voter file and absentee voter lists using two steps to ensure accuracy. First, I use state-issued, standardized voter identification numbers contained in both data sets to find the appropriate matching voter. Then, I verify that the match is correct by comparing names and dates of birth, which are also included in both data sets. Individuals whose first and last names match or whose first name and date of birth match (to account for last-name changes commonly resulting from marriage), as well as the voter identification number, are considered to be accurate matches.

59 I surveyed the websites of all 88 county election boards to determine whether the availability of data was sufficiently widespread to create a statewide database and conduct analysis in this way.
They further allow me to find the particular effect on populations of interest to the client: minority voters.

Limitations of Election Data

Like other political science research that depends on real-world data, these data sources are inherently imperfect. First and most obviously, the elections I study did not occur in vacuums. There are many explanations for increases or decreases in voter turnout during each election: e.g. the animating or depressing features of leading candidates, the existence of a highly salient issue on the ballot or in the campaign rhetoric. That is why, wherever possible, I present evidence using multiple elections, and why I present multiple kinds of evidence of a turnout effect.

In a perfect world, data kept by states and counties everywhere in the country would be detailed, complete, and consistent from year to year. Additionally, voter files would ideally be available for each geography of interest in each year being studied. This reflects a bigger problem evident in much research of this kind. The data necessary to estimate the effect of policies are often not collected or maintained until after the policy itself is implemented. However, the primary purpose of this sort of administrative data is not to aid in research but rather to ensure the proper functioning of an electoral system. This is a primary cause for critiques that I anticipate. And again, I attempt to assuage these criticisms by presenting multiple kinds of evidence.

Imputing Race

In this analysis, I am particularly concerned with one dependent variable: voter turnout and how it is affected across the dimension of race. An early and obvious problem is that the Ohio voter file does not contain a variable for race. Indeed, the state of Ohio does not collect the race of voters when they register, so such a variable is impossible to produce with perfect accuracy.60

Given the client’s preference for a study grounded in Ohio and the lack of credible alternatives in states whose voter records include race (just eight states request that voters identify their race, to ensure compliance with the Voting Rights Act),61 I instead use an established methodology for ecological inference to impute race. This method was developed by political scientist Kosuke Imai of Harvard University and Kabir Khanna, a Princeton doctoral candidate.

Imai and Khanna use Bayes’ Rule and US Census Bureau data to compute a probability that a given individual in a voter file is of a particular race (census data are sufficiently robust to produce

the probability that a registered voter is White, Black, Hispanic, Asian, or Other). In addition to developing the underlying statistical method, Imai and Khanna publish a statistical analysis package in R—called \textit{wru}, short for “Who Are You?”—that is useful for compiling the necessary data and computing the probabilities.\footnote{Full package documentation available: Kabir Khanna and Kosuke Imai, \textit{Wru: Who Are You? Bayesian Prediction of Racial Category Using Surname and Geolocation}, version 0.1-7, 2017, \url{https://CRAN.R-project.org/package=wru}.}

The \textit{wru} package estimates race using a number of predictive variables. The basic idea is this: Census Bureau data establish the probabilities that someone has particular characteristics (e.g. living in the city of Cincinnati) given their race.\footnote{Pr\left(\text{City} = \text{Cincinnati} | \text{Race} = \text{Black}\right) = \frac{\# \text{ of Black residents in Cincinnati}}{\# \text{ of total Black residents in the United States}}.} Using Bayes’ Rule, we can establish the inverse probability: the probability that someone has a particular race given that they live in Cincinnati. This can be done across a variety of characteristics and, using Imai and Khanna’s method and \textit{wru}, turned into a series of probabilities that a given voter is Asian, Black, Hispanic, White, or Other.\footnote{Kosuke Imai and Kabir Khanna, “Improving Ecological Inference by Predicting Individual Ethnicity from Voter Registration Records,” \textit{Political Analysis} 24, no. 02 (2016): 263–72, \url{https://doi.org/10.1093/pan/mpw001}.}

The result is remarkably effective and accurate. Imai and Khanna tested their model on the Florida voter file, which includes a self-reported indicator of race, and produced correct estimates more than 85\% of the time by assuming that the highest probability race is an accurate prediction.\footnote{Imai and Khanna, 268.} Notably, in 72\% of cases in the Hamilton County, Ohio, voter file, the most-likely race has a probability greater than 80\%.

In my predictions, I use the best practice recommended from Imai and Khanna’s work, which includes the following characteristics of each voter from the Hamilton County voter file:

- Census block, the lowest level of aggregation by the US Census Bureau;
- Surname; and
- Party registration, expressed as Republican, Democrat, or Other (including independents and third parties).
Analysis

My primary methodology is statistical analysis of large public datasets. First, I will show the relationship between absentee balloting and voter participation across 12 election cycles using Ohio counties as the unit of analysis. Next, I examine two natural experiments in Hamilton County using individual voters as the unit of analysis. Finally, I explain limitations to understanding the policy effects of interest in the Ohio case that is of interest to the client and offer some possible solutions that could be employed in future research.

County-Level Impact

Before turning to the two natural experiments, I model the effect of absentee voter participation on turnout statewide using counties in individual general elections as the unit of analysis. Using statewide turnout and demographic data, I analyze 12 general elections from 2006-2018—including presidential, midterm, and off-year cycles.\(^{66}\) I use this data to develop a simple linear model with voter turnout as the dependent variable, expressed as a percentage of the voting-age population (VAP) of a given county in a given year.

A statewide lens allows for examination of the Ohio policy as implemented across counties and helps to reduce the possibility that other actions by a single county shaped observed differences in turnout.\(^{67}\) Additionally, because of greater availability of aggregate data, I am able to model a longer time series (12 elections) with the county model. This helps to smooth out election-year-specific differences, such as the existence of particularly exciting candidates or a uniquely contentious, high-profile race.

VAP turnout estimates are preferable to turnout as a percentage of registered voters (the statistic typically reported by states and counties) because registration is a necessary condition to voting, and expressing participation in terms of registration ignores those eligible voters who are not registered to vote. I use VAP as reported in the most recent decennial census for each election (the 2000 census for election years 2006-2009 and the 2010 census for all other elections).\(^{68}\)

I model the relationship between VAP turnout and the absentee share of the vote—that is, the percentage of all ballots cast that were absentee. This ensures that my measures for overall

\(^{66}\) Ohio did not publish county absentee voter statistics in 2007, so 2007 is not included in the analysis.

\(^{67}\) Because Ohio elections are managed at the county level by local boards of elections with direction from the state, local officials do have some autonomy.

turnout and absentee participation are independent of one another. This linear model also includes county and year (i.e. election) fixed effects, which accounts for variation occurring due to particular patterns that recur within counties year over year or across counties within the state during a given election cycle.

The simplest linear model (1) finds that the share of absentee ballots cast is highly predictive of turnout overall across counties. That is, controlling for the particulars of each county and year, a county with more of its ballots cast absentee can expect more votes to be cast.

My second model (2) builds on the first by controlling for race within each county. This reflects that White, Black, and Hispanic voters participate in elections at different rates (notably that Whites are more likely to participate). Specifically, I control for the percentage of each county’s VAP that is Black and Hispanic in the most recent decennial census. Racial breakdown itself has

<table>
<thead>
<tr>
<th>Table 1. Linear Model of Absentee Voting in General Elections at the County Level (Ohio, 2006-2018)</th>
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<tbody>
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<td></td>
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</tr>
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<td>Num. obs.</td>
</tr>
<tr>
<td>RMSE</td>
</tr>
</tbody>
</table>

***p < 0.001, **p < 0.01, *p < 0.05

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70 County-level racial breakdowns change little between decennial censuses. Here, Hispanic means the total group of people identifying as Hispanic in the Census’ ethnicity data and Black includes all those identifying their race as Black who are not Hispanic. Whites can be interpreted as non-Hispanic Whites.
no statistically significant effect in this model, and the effect of absentee voting remains at largely the same levels.

My final model (3) adds an interaction between racial demography and absentee participation in an effort to estimate how greater absentee participation relates to turnout in Blacker or more Hispanic counties.

I find that greater absentee voter participation increases turnout at a faster rate in counties with more Black or Hispanic residents as compared to those with fewer residents of color, all else equal. However, I cannot definitively determine whether these votes are cast by White voters in these counties or voters of color. Additionally, the inclusion of election and county fixed effects makes interpretation somewhat difficult, as baseline participation coefficients may vary between more- and less-diverse counties.

Nevertheless, it is clear that more absentee voting and higher turnout are related, and there is evidence to suggest that counties with larger populations of minority voters see even higher participation as a result of absentee voting.

**No-Excuse Absentee Voting Policy**

The first specific policy change I examine is Ohio’s switch from in-person-only voting to a no-excuse absentee voting option in 2005. Increasing the set of options for voters should positively impact both the overall participation rate and turnout among Black and Hispanic voters in Ohio.

I produce a logit model of 2008 turnout at the individual voter level in Hamilton County as predicted by voter requests of absentee ballots (Table 2). Here, I control for prior voter history in the 2006, 2004, and 2002 elections to address habitual voting—that is, people tend to form a routine of voting, which means that past participation is highly predictive of future turnout.\(^71\) I model the participation effect among four populations: all voters, as well as subsets of the voter file representing only White, Black, and Hispanic voters.

A second version of the model also controls for age, party affiliation, and race.\(^72\) This additional model helps to account for the well-established findings that turnout likelihood is associated with

---


\(^72\) This model uses Democrat as a baseline. Republican, Green, and unaffiliated voter groups are referenced in the table. These party identifications are the only four that appear in the Hamilton County voter file. Racial coefficients are not reported for models (4), (6), or (8), as these include only voters of one race. The model uses Asian as a baseline. Black, Hispanic, White, and other racial groups are referenced in the table. Because of low populations (in both Census and imputed race data), I do not develop separate models for Asian and other-race voters, although they are included in the All Voters models using the entire voter file.
access to greater political resources: older people are more likely to vote than younger people, and White people are more likely to vote than members of minority racial groups.\textsuperscript{73} It also addresses differing participation rates in mail voting by party (although those effects are notably less straightforward than might be expected).\textsuperscript{74}

A logit model better simulates binary probabilities—such as an individual’s decision either to vote or not to vote—than a simple linear regression.\textsuperscript{75} Here, I report the marginal effects from the logit model, which is to say, the average increase in voter turnout associated with each predictor. (Note: Full outputs of the logit model—which suffer from the drawback of being less interpretable than a simple linear model—can be found in “Appendix C: Logit Model Outputs”.)\textsuperscript{76}

As the models show, there is a statistically significant relationship between access to a mail ballot and voter participation. This finding holds both when accounting for only prior participation, as well as other demographic controls. have a statistically significant impact on participation, when accounting for prior participation alone, as well as other demographic controls. Table 2 shows that among all groups of voters I study, an absentee ballot increases the probability of participation by a statistically significant amount.

The marginal effect of prior election participation is unsurprisingly much higher than that of absentee ballot access, but mail ballots nevertheless have a statistically significant effect. Among all voters, an absentee ballot increases, on average, the probability of voting by 1.1 to 1.2 percentage points.

The race-specific models are useful to compare the effects among racial groups. We see, notably, that the finding that access to a mail ballot is associated with higher turnout holds among White, Hispanic, and Black voters alike. This effectively rules out the possibility that creating new options disadvantages certain racial groups in real terms (i.e. by reducing turnout). However, it appears that the effectiveness of absentee ballot access is more predictive of increasing participation among Hispanic voters than White or Black voters and is less predictive for Black voters than the other groups. (This does not necessarily mean that a mail ballot option helps minority voters turn out at a lower or higher rate than White voters.)

\textsuperscript{73} Brady, Verba, and Schlozman, “Beyond SES.”
\textsuperscript{75} For this reason, logit models are a commonly used statistical method in the convenience voting literature; e.g. Gerber, Huber, and Hill, “Identifying the Effect of All-Mail Elections on Turnout.”
\textsuperscript{76} I have also produced linear models that can be found in “Appendix D: Alternative (Linear) Models of Voter Turnout.” These models are substantially similar to the logit models.
A likely (and understandable) critique may be that the 2008 presidential election was not representative of American elections, particularly when considering minority voter status as a dimension. After all, 2008 was the year that Barack Obama first ran for President, bringing a “surge” of Black voters with him. I use 2008 because it is the first election for which individual-level absentee voting behavior is available following Ohio’s 2005 policy change. This allows me

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to compare pre- and post-change elections. The 2010 midterm election shows similar results to 2008, and my analyses of the 2012 absentee voting encouragement mailer and the county-level aggregate results (below) help to confirm my findings here.

An additional anticipated critique is that there is a relationship between accessing an absentee ballot and casting a vote because these two characteristics are not exogenous. That is, because voters’ decision to vote and decision to vote absentee are not independent. I address this criticism in some depth below.

**Absentee Voting Encouragement Mailer**

The second policy intervention I study is the Secretary of State’s Office’s mailing absentee ballot applications to voters beginning in 2012. That year, the percentage of all ballots cast absentee rose to 29.1%, up from 24.6% in the prior presidential election in 2008.

Here again, I build logit models using the same process outlined above. In these models, I again use Hamilton County voter file data and individual voters as the unit of analysis (Table 3). Because the application mailing program began in 2012, I can separate this policy from the existing absentee voter policy by examining the 2012 election and controlling for 2008 and 2010 turnout. I also control for whether voters requested an absentee ballot in 2008 and 2010 because of habit-forming nature of voting suggests that some voters might routinely request an absentee ballot every election. The effect of the 2012 policy change I am interested in is whether first-time mail voters were driven to participate as a result of the encouragement mailing.

Again, I find that access to an absentee ballot after the application mailing is statistically significantly predictive of an individual voter’s decision to turn out, even when accounting for participation in recent elections. Specifically, the marginal effect of mail ballot access among all voters is 5.5 or 6.9 percentage points (depending on the model).

As above, I also find that the relationship between absentee ballot access and voter participation exists for Black and Hispanic, as well as White, voters.

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80 As above, I produce a table of the full logit model output in “Appendix C: Logit Model Outputs” and an alternative linear model in “Appendix D: Alternative (Linear) Models of Voter Turnout.”

81 Fowler, “Habitual Voting and Behavioral Turnout.”
Table 3. Marginal Effects of Logit-Modeled Absentee Voting on 2012 Turnout (Hamilton County, Ohio)

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<thead>
<tr>
<th></th>
<th>All Voters</th>
<th>Black Voters</th>
<th>Hispanic Voters</th>
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<td>(0.002)</td>
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</table>

*** p < 0.001, ** p < 0.01, * p < 0.05

Limitations to Interpretation and Proposed Solutions

In addition to the general limitations of administrative election data outlined in the “Methodology and Notes on Data” section above, there are some particulars of the Ohio case that limit my ability to draw strong conclusions. While Ohio is of particular interest to the National Vote at Home Institute and is informative about no-excuse absentee voting policies writ-large,
these limitations should inform reactions to my results. Below I outline limitations and offer some solutions that future research could integrate into their approach.

- **Limitation:** Because Ohio does not retain and publish archive versions of its voter file, I do not have a complete picture of all registered voters at the time of the policy changes used for the natural experiments. Even if those older data were available, this analysis would still be lacking, as some eligible voters may not register (though notably this limitation holds for all election data).

  **Solution:** Studies of other voting policies—e.g. mandatory voter photo identification laws—have relied on national surveys such as the Cooperative Congressional Election Survey (CCES) to estimate total-population effects.\(^{82}\) Similar approaches could be used for mail voting policies; the CCES asked about absentee voting as far back as 2006 (although limited sampling makes it hard to conduct analyses in smaller jurisdictions or particularly small units of analysis).\(^{83}\) Additionally, private companies, such as Catalist, maintain some archive voter files that could be used to build contemporary data in future analyses. Finally, some states offer archived snapshots of the voter file useful for further research (notably, North Carolina makes available voter files and history back to 2005).\(^{84}\)

- **Limitation:** Because of the unique character and complexity of each individual election, causal effect is difficult to establish using a single geography (i.e. one state) over time, especially when it established a mail voting policy statewide all at once. I cannot completely rule out other possible drivers of turnout beyond the mail voting program or mailed application policy.

  **Solution:** Future analysis could integrate this Ohio data with other states that also established no-excuse absentee voting statewide at one time. This would allow for a larger number of observations and greater heterogeneity in the context surrounding elections. Research focusing on states that had delayed, county-by-county rollout (as in Washington and Utah, both of which feature in existing literature) could have this same effect.\(^{85}\)

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\(^{85}\) E.g. Gerber, Huber, and Hill, “Identifying the Effect of All-Mail Elections on Turnout”; Showalter, “Utah 2016.”
• **Limitation:** Available Ohio absentee voter data that I use reflects requests for absentee ballots that are available statewide. A concern reflected in some of the literature is that voters decide whether or not to vote before deciding whether to request an absentee ballot.86

**Solution:** An alternative method used in other National Vote at Home Institute research is to use predicted turnout scores and measure the variation between expected turnout and actual participation. This may be useful in establishing the effect of mail voting policies given prior likelihood of participation. However, this requires access to models largely maintained by private firms and sold to campaigns.

A final critique that some may argue is that the measured effect of vote-at-home reforms reflects the response to the policy by political parties and individual campaigns. That may well be the case. However, the response of outside groups to the policy change is integral to the policy change itself. Campaigns and parties are responsible for most of the election-related communication and have massive resources for Get Out the Vote (GOTV) efforts. These resources can be channeled toward vote-at-home methods just as they can be used to encourage Election Day turnout or early in-person participation. Because elections exist as an ecosystem of people, policies, and organizations, the way that individuals and groups respond to the policy change is part and parcel to the change itself.

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Lessons and Recommendations

There are four key takeaways from this study of Ohio’s mail voting policies, which correspond to recommendations for election policy applicable across states.

Lesson 1: States Should Pursue Mail Voting Access

**Question:** Does access to a mail voting option increase voter turnout?

**Evidence:** Ohio counties where more voters participate in the mail ballot program have higher overall turnout. Additionally, access to a mail ballot is a statistically significant driver of individual voter turnout in Hamilton County.

These findings confirm a major subset of existing political science research on the question that finds a small (but statistically significant) turnout effect from increasing options for casting a ballot by allowing no-excuse absentee voting or all-mail elections.

**Implications:** As states work to implement election policies that simplify voting and help address America’s low-turnout problem, mail voting ought to be a high priority. Certainly, my and other researchers’ findings suggest that vote-by-mail programs increase voter turnout. But even if the effect of mail balloting was null (and not negative), states should pursue mail-voting policies.

No-excuse absentee voting increases options for people and reduces both the Election Day time constraint and the precinct polling place location constraint of traditional elections. Creating options appears to increase participation, which states ought to view as a goal of their election laws, particularly given America’s lackluster record of voter participation.

Lesson 2: Voters of Color May Benefit from Absentee Voting

**Question:** Are voters of color more likely to vote under mail balloting programs?

**Evidence:** I find that Black and Hispanic voter turnout is not harmed by no-excuse absentee voting. The evidence is mixed as to whether Black and Hispanic turnout increases more or less than White voter turnout. Aggregate county-level results suggest a higher relationship between absentee participation and overall turnout in more diverse counties than in those that are more White. However, the results of individual-level analyses are more mixed.

**Implications:** If given the opportunity, voters of all races will turn to convenient vote-at-home options. Although I am unable to contribute meaningfully to the debate about whether minority voters’ share of the overall voter pool increases as a result of a mail-voting option, it is clear that
Black and Hispanic voters do experience a turnout increase under no-excuse absentee voting regimes.

**Lesson 3: Encouraging Mail Voting Increases Absentee Turnout**

**Question:** Does state encouragement of mail voting increase likelihood of participation?

**Evidence:** The Ohio Secretary of State’s 2012 policy change to encourage absentee ballot applications coincided with increased absentee participation. Additionally, I find that mail ballot access is predictive of turnout in 2012, even when accounting for requesting an absentee ballot in 2012.

**Implications:** The state encouraging mail voting is associated with increased use of the program and with increased participation in elections in general. These two outcomes may well be linked, but regardless, they suggest that governments reminding voters of upcoming elections and encouraging them to participate in a convenient way (i.e. via mail) increases engagement with the democratic process. This falls within the expected outcomes from the literature on social pressure and voting, as well as on the effects of canvassing: when people are reminded to vote, they vote.

That said, there may be lower-cost policies that achieve similar effects. All-mail elections present an alternative to encouraging absentee voting that reduces the amount of transactions, staff, mailings, and time needed to cast a vote. Instead of mailing an absentee ballot application to every voter and requesting they submit it in order to receive a mail ballot, the state could instead mail voters the ballot itself, thereby reducing the number of steps. Another lower-cost alternative that some states have pursued is allowing voters to be placed on the absentee list permanently.

**Lesson 4: Understanding Voting Changes Requires Better Data**

**Problem:** Many states, including Ohio, do not maintain archive data, which inhibits the ability to conduct natural experiments and make a causal argument.

**Potential for change:** Increasing access to and quality of election administrative data is both important and simple. States can save archive voter files and voter history and make them readily available to the public and researchers—something that some states do free of charge but is restricted or cost prohibitive in many.

**Implications:** States’, advocates’, and researchers’ ability to understand the impact of future election law changes depends on the maintenance of high-quality data in the present. This analysis is severely limited by the existence of only contemporary voter file data, as the state of Ohio (like nearly every other state) does not save snapshots of its voter file for research purposes.
What’s more, the kinds of data available, and its quality, vary widely from state to state and even within states. While outside groups have largely filled this void in the market, the existence only of high-cost, privately held data about public elections limits research and, ultimately, the advancement of election policy.

The time to start thinking about preserving data for policy analysis is now, not at the time of passing election law changes.
Appendix A: References


Appendix B: Absentee Ballot Application

Form No. 11-A Prescribed by the Secretary of State (09-17)

Absentee Ballot Application

R.C. 3509.03

Voter Name Required

1 First ___________________ Middle ___________________ Last ___________________ Suffix ________________

Date of Birth Required

2 Date of Birth (do not write today’s date here) _______________ MM/DD/YYYY

Address at Which you are Registered to Vote Required

3 Street Address (no P.O. box) ___________________ County ________________
City/Village ________________ ZIP ________________

Mailing Address

4 Street Address (or P.O. box) ___________________ State ________________ ZIP ________________
City/Village ________________

Identification Required

5 Your Ohio driver’s license number (2 letters followed by 6 numbers) ___________________ OR

☐ Last four digits of your Social Security number ___________________ OR

☐ Copy of a current and valid photo identification, military identification, or a current (within the last 12 months) utility bill, bank statement, government check, paycheck or other government document (other than a notice of voter registration mailed by a board of elections) that contains your name and current address.

Election Required

6 Date of Election (do not write today’s date here) _______________ MM/DD/YYYY

☐ General Election ☐ Special Election

☐ Primary Election For a PARTISAN primary election only, you must choose the type of ballot:

☐ Political party ballot Name of Political Party ___________________ ☐ Issues only ballot

Affirmation Required

7 I wish to have an absentee ballot mailed to me at the address listed above.

I understand this request must be received by my board of elections no later than noon on the Saturday before Election Day if by mail or by 2 p.m. the day before the election if in person.

I understand that if an absentee ballot is mailed to me and I change my mind and go to my polling place to vote on Election Day, I will be required to vote a provisional ballot that cannot be counted until at least 11 days after Election Day.

I understand that, if I do not provide the required information, my application cannot be processed.

I hereby declare, under penalty of election falsification, that I am a qualified elector and the statements above are true.

Signature X ___________________ Today’s Date _______________ MM/DD/YYYY

To assist the board of election in contacting you in a timely manner if your application is incomplete, please provide the following information.

Telephone Number ___________________ E-mail Address ___________________

WHOMEVER COMMITS ELECTION FALSIFICATION IS GUILTY OF A FELONY OF THE FIFTH DEGREE.

Source: Ohio Secretary of State.

Ohio Secretary of State, “Absentee Ballot Application.”
## Table C.1: Logit Model Outputs

The table below presents the logit model outputs for absentee voting on 2008 turnout in Hamilton County, Ohio.

<table>
<thead>
<tr>
<th></th>
<th>All Voters</th>
<th>Black Voters</th>
<th>Hispanic Voters</th>
<th>White Voters</th>
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<td>(0.030)</td>
<td>(0.053)</td>
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**BIC**  
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**Deviance**  
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**Num. obs.**  
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237758  
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54588  
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1546  
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***p < 0.001, **p < 0.01, *p < 0.05
### Table C2. Logit Model of Absentee Voting on 2012 Turnout (Hamilton County, Ohio)

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*** p < 0.001, ** p < 0.01, * p < 0.05
## Appendix D: Alternative (Linear) Models of Voter Turnout

### Table D1. Linear Model of Absentee Voting on 2008 Turnout (Hamilton County, Ohio)

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*** p < 0.001, ** p < 0.01, * p < 0.05
Table D2. Linear Model of Absentee Voting on 2012 Turnout (Hamilton County, Ohio)

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***p < 0.001, **p < 0.01, *p < 0.05