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# Who Votes Without Identification? Using Individual-Level Administrative Data to Measure the Burden of Strict Voter Identification Laws

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Legal disputes over laws that require certain forms of identification (ID) to vote mostly focus on the burden placed on people who do not possess ID. We contend that this singular focus ignores the burden imposed on people who do possess ID, but nonetheless cannot access it when voting. To measure this alternative conception of burden, we focus on Michigan, which allows anyone who lacks access to ID to vote after signing an affidavit. A sample of affidavits filed in the 2016 presidential election from a random set of precincts reveals that about 0.45 percent of voters lacked access to ID. Consistent with our broader conception of the burden of voter ID laws, nearly all voters who filed an affidavit were previously issued a still-active state ID. Importantly, we show minority voters were about five times more likely to lack access to ID than white voters. We also present survey evidence suggesting that people who live in states where voters are asked to show ID, as in Michigan, are more likely to incorrectly believe that access to ID is required to vote than are people who live in states that do not ask voters to show ID.

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## I. INTRODUCTION

More than a decade ago, Indiana passed the nation’s first strict photo voter identification (ID) law, requiring nearly all voters to present photo ID for their ballot to count. When the law was challenged, the Supreme Court balanced the alleged benefits to the state of requiring photo ID against the burden imposed upon voters. The benefits included the deterrence of fraud and the greater belief in the integrity of elections, while the assessment of burden focused on those who did not possess valid ID. Ultimately, the controlling opinion in *Crawford v. Marion County Election Board*, 553 U.S. 181, 201 (2008) concluded that the record “does not provide any concrete evidence of the burden imposed on voters who *currently lack* photo identification” (emphasis added). Justice Souter’s dissenting opinion would have instead concluded that a substantial number of potential voters would find it costly to acquire a type of valid ID.

The focus in *Crawford* on how voter ID laws burden those who do not *possess* ID shaped policy making, litigation, and scholarship in the years that followed. Voter ID policies often carved out provisions designed to reduce the burden of acquiring ID, particularly for those individuals who might find doing so particularly burdensome. Lawyers then litigated whether these policies made it prohibitively costly for a sufficient number of would-be voters to acquire ID. Many studies estimating the effect of voter ID laws on turnout compare how turnout changed among those who did and did not possess ID when a voter ID law took effect (see, e.g., Hood & Bullock 2012; Esposito et al. 2017). All of this is predicated on the theory that the burden of voter ID laws primarily falls on individuals who do not possess ID.

In this article, we argue that more attention should be paid to the additional burdens that strict voter ID laws impose on people who actually possess identification, but cannot *access* it when voting. To be very clear about the distinction between possession and access, *possession* refers to whether a voter has been issued an ID that satisfies the ID law, whereas *access* refers to a voter’s ability to show that ID when voting. People who have been issued a driver’s license but misplace it or forget to bring it with them to the polls on Election Day, for example, possess ID but could still be disenfranchised under a strict voter ID law because they cannot access it.

To test this argument, we introduce a new form of administrative data generated in Michigan that identifies voters who cannot access their photo ID at the polls. Since 2007, Michigan has imposed a non-strict photo ID law, meaning that voters have been asked, but not required, to show specific forms of photo ID when voting. Those who do not have such ID with them, either because they do not possess it or cannot access it, can instead sign an affidavit and then cast a ballot just like anyone else.

Michigan’s affidavits are an example of the type of administrative records from non-strict states that are useful for identifying how many voters lack *access* to ID. When these affidavits are combined with information on the possession of state-issued ID, we can observe how many voters who possess ID lacked access to it at the polls. These two quantities are useful both for understanding who is voting without access to ID in Michigan, usually one of the most contested states in the Electoral College, and extrapolating to the likely characteristics of people disenfranchised in states with strict ID laws.

Using hundreds of public information requests to municipalities throughout Michigan, we assembled a dataset identifying individual voters who signed affidavits in a random sample of precincts during the 2016 presidential election. First, we matched the hand-written affidavits to specific registrants in the statewide voter file. We supplemented these data with information on which registered voters possessed valid state-issued ID, in collaboration with the Michigan Secretary of State's office. With these new data, we estimate that 0.45 percent of voters could not access ID when they went to vote in Michigan in 2016. Further, an overwhelming share of these voters nonetheless possessed state-issued ID, consistent with our theory that more attention should be paid to the burdens that voter ID laws place on those who possess, but cannot access, ID when voting. Importantly, we also find evidence that requiring people to have access to ID in order to vote will have a disparate racial impact. Imputing race based on surname and residence, we find that minority voters are about five times more likely to lack access to ID than are white voters.

These results inform us about the share of voters who could be de jure disenfranchised if Michigan shifted from a non-strict to strict photo ID law. De jure disenfranchisement in this context refers to voters who would no longer be able to cast a ballot that counted if they were required by law to show photo ID. The 0.45 percent of voters who could not access ID in the 2016 presidential election is an upper bound on the potential de jure disenfranchisement if Michigan had instead used a strict photo ID law because some of these voters would have showed photo ID if doing so had been required.

While our estimates suggest that a relatively small number of voters would be de jure disenfranchised by a shift from a non-strict to strict photo ID law, our estimates do not speak to how many people may be de facto disenfranchised by the non-strict photo ID law in the first place. De facto disenfranchisement in this context refers to people who do not vote because they incorrectly believe that access to photo ID is necessary. To emphasize the distinction between de jure and de facto disenfranchisement, we present the results of a national survey showing that the public is generally quite misinformed about whether they are required to show ID to vote in their state of residence. Respondents were about 15 percentage points more likely to incorrectly believe that it is necessary to show photo ID to vote when living in a state with a non-strict voter ID law than in a state that does not ask voters to show ID, suggesting relatively more attention should be paid to the potential de facto disenfranchisement caused by the imposition of non-strict ID laws in the first place.

## II. MEASUREMENT AND DESIGN

Since the Supreme Court's decision in *Crawford*, many scholars have studied the rate at which registered voters possess the type of ID required to vote in strict voter ID states. While some contend that the rate of non-possession is substantially higher than what was put forward in *Crawford*, this work generally concludes that more than 90 percent of registered voters possess at least one of the forms of ID necessary to vote, even in subgroups, such as blacks, that are least likely to possess it (see, e.g., Barreto & Sanchez 2012;

Ansolabehere & Hersh 2017). On its own, such estimates do not tell us about the burden of strict voter ID laws because not every registered voter without ID intends to vote. But the high baseline rate of possession informs how scholars should assess the effect of voter ID laws on turnout.

A number of studies adopt a cross-state design, relating variation across states in ID requirements to variation across states in voter turnout (see, e.g., Alvarez et al. 2008; Mycoff et al. 2009; Hajnal et al. 2017; Cantoni & Pons 2019). Such studies, though, are systematically underpowered for at least two related reasons (Erikson & Minnite 2009; Zhang 2020). For one, high possession rates imply that only a small share of potential voters is likely to be affected by ID laws, even when focusing on demographic groups who disproportionately fail to possess ID. As a result, cross-state studies lack a sufficient effective sample size to isolate such a small change in turnout from all other electoral forces that affect a group's turnout rate over elections. Moreover, states that adopt more stringent voter ID laws tend to already have lower turnout than those that do not (Grimmer et al. 2018). Common techniques to account for this nonrandom policy adoption, like the inclusion of state fixed effects, further erode already limited statistical power. Because of these limitations, scholars also use before-and-after designs to study voter ID laws in a specific state, where they can relate individual-level measures of voter ID possession and voter turnout. Many take advantage of state driver's license databases to specifically relate possession of a driver's license to turnout before and after the introduction of a voter ID law (see, e.g., Hood & Bullock 2012; Esposito et al. 2017; Hood & Buchanan 2020; Grimmer & Yoder 2021). These studies are able to statistically distinguish the turnout rates or trajectories of registrants who do and do not possess ID, but they introduce additional concerns about inference in their place.

For one, we expect these studies to sometimes misclassify whether someone possesses one of the forms of ID necessary to cast a ballot. Documenting whether a registered voter has a driver's license often involves a complex record linkage process. While Ansolabehere and Hersh (2017) show that merging records using fields like name, address, zip code, and gender can do a good job of uniquely identifying individuals when the data are perfect, missing fields, inconsistent data fields, and typographical errors are present in all databases in the real world. Moreover, driver's licenses usually are just one of the accepted forms of ID and there is rarely a single database of all the accepted forms of ID. Importantly, Ansolabehere et al. (2015) highlight why misclassification can be so problematic when studying "low frequency categories" such as registered voters' lack of ID. The issue, simply stated, is that even a small number of false negatives—people who actually possess ID but are measured to lack ID—can quickly swamp the number of true negatives—people who actually lack ID and are measured to lack ID. Because we think that false negatives would vote at higher rates than true negatives, we expect analyses of administrative data to potentially underestimate how possession of ID affects turnout in states with a voter ID law.

Another concern beyond misclassification is that these studies gain precision in measurement by subtly changing the quantity of interest being estimated. The initial cross-state designs could, in theory, capture the total effect of ID laws—both on those who do not possess ID and those who possess ID, but cannot access it on Election Day—whereas these single-state studies typically focus more narrowly on those who do not possess ID. Such single-state studies will come close to approximating the total effect of voter ID laws on

turnout only if the voter ID law being studied primarily disenfranchises potential voters who do not possess ID instead of potential voters who cannot access it when voting.

We overcome this problem by recognizing that administrative records from states with non-strict ID laws sometimes leave a paper trail that comprehensively documents registrants who desire to vote and do not have ID at the polls, either because they do not possess it or because they cannot access it. In Michigan, voters check into the polling place by filling out an “Application to Vote” when they arrive. All voters are then asked to present a driver’s license, passport, or other form of state, federal, military, student, or tribal ID, provided that it includes a photograph. Voters who do not show acceptable ID, either because they do not have one or they did not bring it with them to the polls, must attest to their identity by filling out an “Affidavit of Voter Not in Possession of Picture Identification,” which is typically located on the back of the Application to Vote.

Fraga and Miller (2018) pursue a similar measurement strategy to identify voters who filled out a similar document in the same election in Texas. We independently began this work at the same time and think there is much to recommend about their approach. The primary advantage of their study is that Texas shifted from enforcing a strict ID law in 2014 to enforcing a non-strict ID law in 2016. This variation provides Fraga and Miller with some leverage to potentially recover who was prevented from voting in 2014 when Texas had a strict voter ID law in place.

While there is much to like about Fraga and Miller’s approach, we think our data are better at generating a comprehensive and accurate measure of who both wishes to vote and lacks access to ID when voting. The removal of the strict ID requirement in Texas was not a change in the law but the result of a temporary court order. The downside of studying a state with such a tumultuous voter ID law is that many voters without access to ID may have believed the state had continued to enforce its strict ID law in 2016, even though such ID was temporarily unnecessary. These people may thus have been deterred from even showing up at the polls.

In contrast, the 2016 presidential election was the fifth general federal election conducted since the implementation of Michigan’s non-strict voter ID law. As a result, we believe that our case study provides more externally valid information about who wants to vote but cannot access ID.

We also think our approach is preferable to using surveys to measure who both wishes to vote and lacks access to ID. For one, it may only be possible to measure who can access ID at the polls *on* Election Day. A survey respondent may not remember whether he or she had access to ID on Election Day when asked about it months after the election (see, e.g., Hobby et al. 2015; DeCrescenzo & Mayer 2019). In contrast, measures taken before Election Day will miss those who simply cannot locate their ID on Election Day. For another, people also notoriously over-report their political participation on surveys, which makes it challenging to obtain credible estimates of how many people are prevented from voting (Ansolabehere & Hersh 2012). Our approach is most similar to studies that use exit polls to identify potential voters who lacked access to (McConville et al. 2018), or possession of (Barreto et al. 2007), ID when voting. However, administrative records, when available, are superior to these surveys from the perspective of cost, coverage, and reduced concerns about measurement error.

### III. DATA

This section describes how we construct our dataset in a sample of Michigan precincts. For all registered voters in each sampled precinct, we attempted to identify who filed an affidavit, who possessed state-issued ID, and their likely demographics.

#### A. Affidavits

We drew a random sample of 20 percent of Michigan precincts using an April 2017 copy of the statewide voter file. In each municipality that contained at least one sampled precinct, we made a public records request for copies of every Affidavit of Voter Not in Possession of Picture Identification filed in the sampled precincts, along with each paired Application to Vote. For ease, when we refer to an affidavit, we mean both forms. We were ultimately able to collect affidavits for 839, or 97.2 percent, of the 863 precincts in our sample. In the robustness section that follows, we discuss why this small amount of missing data should not affect our conclusions.

Figure 1 shows an example of an affidavit. A voter who lacks access to ID at the polls is supposed to list his or her name, address, and date of birth, and to sign the form in the presence of an election inspector, which is what Michigan calls poll workers. The election inspector is then supposed to sign the affidavit as well. However, we noticed that some affidavits lacked an inspector's signature. While the lack of a signature does not matter for purposes of counting ballots—a voter who fills out an affidavit votes the same way as a voter who presents ID—it affects our beliefs about whether affidavit filers had access to ID.

Our expectation is that some of these affidavits went unsigned because the voter filled out the affidavit unnecessarily, while other unsigned affidavits represent cases of clerical error on the part of the election inspector. We also expect that clerical errors would generate more clustering of unsigned affidavits by precinct than voter

Figure 1: Election Day forms.

(a) Front

(b) Back

errors because the same election inspectors are handling all of the affidavits within a precinct.

To address this, coders reviewed each hand-written affidavit and identified which affidavits were signed by an election inspector. In total, 53.5 percent of the affidavits we observe were not signed by an election inspector and 3.8 percent had no inspector information available. We also observe substantial clustering of unsigned affidavits within precincts. We ultimately conclude that it is inappropriate to treat unsigned affidavits as conclusive evidence that a voter either had access to or lacked access to an ID. As a result, we model the probability that voters filing an unsigned affidavit lacked access to ID, as discussed in the subsection below describing our data on registered voters' possession of state-issued ID.

### *B. Statewide Voter File*

Coders attempted to match each affidavit we collected to a registration record in the statewide voter file using the process detailed in Section A of the Appendix. In short, coders relied on information about the voter's name, year of birth, and address. Specifically, we had multiple coders manually search municipality-specific subsets of the statewide voter file for the registration record that best matched the information listed on the affidavit using a custom-built web application.

Our process is almost always able to identify the registrant who filed the affidavit. We identified a single best match in the statewide voter file for 99 percent of the voters filing an affidavit in one of our sampled precincts. In 0.3 percent of cases, we randomly selected a registration record from the subset of registration records that we deemed an equally plausible match given the information that we had access to about the affidavit filer, while in 0.7 percent of cases, we could not find any registration record that we deemed a plausible match. Reasons why we could not find a match include that the affidavit filer's registration was removed almost immediately after the election or the affidavit lacked sufficient name information or presented the name in a substantially different form than the name was presented on the registration.

Coders matched affidavits to a copy of the statewide voter file obtained from TargetSmart. Although TargetSmart is a political consulting firm, we only used variables within this voter file that came from Michigan's official records. Importantly, the voter file includes vote history in federal primary and general elections from 2008 to 2016, with coverage of 98.6 percent of the 2016 presidential votes.

### *C. Additional Demographics*

The Michigan voter file includes registrants' gender as well as a measure of age, but it does not provide race or ethnicity or party of registration. As a result, we use the method proposed by Imai and Khanna (2016) to learn about a voter's likely racial and ethnic identification. Their method takes as an input a person's surname, which is in the voter file, and their geolocation, which we obtain by geocoding every address in the voter file. Section C in the Appendix details the imputation process and explains that about

95 percent of voters' race probabilities were calculated based on the demographics of their census block of residence, while 5 percent were calculated based on the demographics of the modal census tract of their precinct because of data-quality concerns with the geocoding.

Using registrants' voter registration numbers, we also linked registration records to a commercial dataset maintained by Practical Political Consulting, a Michigan political consulting firm, detailing which party's primary registrants voted in, if they voted in the 2016 presidential primary.<sup>1</sup> This is necessary because the Michigan voter file contains no information about a registrant's party identification. But, by definition, the data capture a proxy for partisan preference only for the subset of registrants who participated in this election, meaning that we do not measure the partisan preferences of registrants who did not match to a vote record in this election.

#### D. State-Issued ID

Using registrants' voter registration numbers, the Michigan Bureau of Elections linked all registration records from precincts in our sample to Michigan's statewide ID database.<sup>2</sup> Registrants are counted as possessing state-issued ID if the database indicates that they had an active state driver's license or active state personal ID card as of the November 2016 General Election.

Given that we observe that a high share of Michigan registrants possess state-issued ID, we validated that we could identify at least some registrants who did not. We identified seven students at the University of Michigan who told us that they were registered to vote in Michigan and did not possess any state-issued ID. Consistent with their claims, all these students were identified by the Bureau of Elections as not possessing state-issued ID. These students could still vote without filing an affidavit if they showed one of the permissible alternative forms of photo ID, which includes their student ID.

Section B in the Appendix describes how we use these data to estimate the probability that affidavits without an election inspector signature were filed by voters who lacked access to ID. Broadly, we make use of information on differences in the rates of possession of state-issued ID among those voters who did and did not have their affidavit signed by an election inspector. We ultimately estimate that approximately 51.8 and 73.2 percent of voters who filed unsigned affidavits and affidavits with an unknown signature status lacked access to ID, respectively.

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<sup>1</sup>A total of 28,351 of the 1,429,437 registration records in our sample, or less than 2 percent, are excluded from this analysis because we lack information on their voter registration number.

<sup>2</sup>As above, 28,351 of the 1,429,437 registration records from precincts in our sample, or less than 2 percent, are excluded from this analysis because we lack information on their voter registration number.

## IV. RESULTS

We first use our data to estimate the share of voters who lacked access to ID at the polls based on the affidavits collected, explore racial differences in access, and show the robustness of our result to missing affidavits, errors in matching affidavits, and strategically filed affidavits. We then compare and contrast access to ID at the polls with possession of state-issued ID. Finally, we calculate the potential electoral consequences of moving from a non-strict to strict photo ID law and distinguish this marginal effect from the separate effect of voter confusion, which we document using a nationally representative survey.

### A. Access to ID

Table 1 shows that our best estimate is that 0.45 percent of voters lacked access to ID, with a 95 percent confidence interval on this statistic of 0.40 to 0.50. The unit of observation is a polling place voter in the 2016 presidential election from one of our sampled precincts. The dependent variable is the probability that the voter lacked access to ID, based on the filing of an affidavit and whether it was signed by the election inspector.<sup>3</sup> Our estimate that 0.45 percent of voters lacked access to ID is based on the constant reported in Column 1.

Table 1 also shows that minority voters are about five times more likely than white voters to lack access to ID. Column 2 of Table 1 reports the results of a bivariate regression in which the probability that the voter lacks access to photo ID is regressed on the probability that the voter is a minority. The estimated constant in this regression is 0.0022, indicating that our best estimate is that 0.22 percent of white voters lack access to ID. The coefficient on the probability that the voter is a minority is 0.0103, which, when added to the constant, indicates that our best estimate is that 1.25 percent of minority voters lack access to ID. Thus, while the rate at which voters of all races lack access to ID is low, minorities are substantially more likely to lack it.

The remainder of Table 1 shows that we continue to observe racial differences in access to photo ID when we control for both demographic and contextual variables that affect the rate at which voters lack access to ID. The coefficient on the probability that the voter is a minority is nearly identical in the regression reported in Column 3 as in Column 2, when we are also controlling for the voter's gender, the decade in which the voter was born, and whether the voter has any previous vote history.<sup>4</sup> In Column 4, we control for features of the areas in which a voter resides. We expect voters who drive to the polls will be more likely to have access to their driver's license than voters

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<sup>3</sup>Thus, the dependent variable is equal to 1 when the voter filed an inspector-signed affidavit, 0.732 when the voter filed an affidavit with an unknown signature status, 0.518 when the voter filed an unsigned affidavit, and 0 otherwise, based on the results of Section B in the Appendix.

<sup>4</sup>Figures A1, A2, and A3 in the Appendix presents more granular data about how past turnout and year of birth associate with the likelihood of filing an affidavit.

Table 1: Correlates of Lack of Access to Photo ID When Voting at a Polling Place

	(1)	(2)	(3)	(4)
Constant	0.0045 (0.0003)	0.0022 (0.0002)	0.0074 (0.0006)	0.0659 (0.0161)
Probability race = nonwhite		0.0103 (0.0010)	0.0099 (0.0010)	0.0077 (0.0009)
Gender = female			0.0002 (0.0002)	0.0002 (0.0002)
Unknown decade of birth			-0.0174 (0.0013)	-0.0217 (0.0025)
Born in 1910s			0.0281 (0.0248)	0.0281 (0.0249)
Born in 1920s			0.0048 (0.0021)	0.0047 (0.0021)
Born in 1930s			-0.0019 (0.0007)	-0.0019 (0.0007)
Born in 1940s			-0.0031 (0.0006)	-0.0030 (0.0005)
Born in 1950s			-0.0035 (0.0005)	-0.0033 (0.0005)
Born in 1960s			-0.0035 (0.0005)	-0.0032 (0.0005)
Born in 1970s			-0.0030 (0.0005)	-0.0027 (0.0005)
Born in 1980s			-0.0021 (0.0005)	-0.0019 (0.0005)
Previously voted			-0.0030 (0.0003)	-0.0028 (0.0003)
% Workers commuting via car (tract)				-0.0074 (0.0057)
% Adults with any college education (tract)				-0.0033 (0.0030)
Logged per capita income (tract)				-0.0050 (0.0014)

NOTES: N = 686,684. Dependent variable is probability voter lacked access to photo ID given affidavit and inspector signature. Robust standard errors clustered by precinct in parentheses.

who walk, so we control for the share of workers in the census tract who report driving to work in the registrants' census tract. We also expect access to photo ID to be increasing with respect to socioeconomic status, and so control for measures of educational attainment and income. Including these controls only slightly attenuates the coefficient on the probability that the voter is a minority. Thus, while minority voters are more likely to reside in poorer areas where people drive less than white voters, this does not appear to be the primary explanation for why minority voters are less likely than white voters to have access to photo ID. We do expect that we might find a stronger relationship between driving and access to photo ID if we had a better measure of whether an individual drove his or her car to the polls.

The exact estimates of the percentage of voters who lacked access to ID, both overall and by race, depend on the assumption about the rate at which unsigned affidavits

represent inspector error instead of voter error. The more unsigned affidavits are caused by inspector error, the greater the estimated lack of access and estimated racial differences. Table A3 in the Appendix presents one extreme, in which all unsigned affidavits represent voters who lacked access to ID. In this case, 0.61 percent of voters lacked access to ID, with minority voters estimated to be almost eight times more likely to lack access than white voters. Table A4 presents the other extreme, in which only signed affidavits represent voters who lacked access to ID. In this case, only 0.27 percent of voters lacked access to ID, with minority voters instead estimated to be about three times more likely to lack access than white voters.

Table A5 in the Appendix shows that while most groups of minority voters are more likely to lack access to ID than white voters, black voters are particularly likely to lack access to ID. Table A5 disaggregates the percent minority into the percentage from four different minority groups. The results presented in Column 2 show that we estimate 0.25, 1.57, 0.57, 0.23, 0.80 percent of white, black, Hispanic, Asian, and other race or ethnicity voters lack access to ID. Thus, while we observe a statistically significant difference between whites and all minority groups except for Asian, the difference is most substantively meaningful when comparing the rates at which white and black voters can access ID.

*B. Possession of ID*

Table 2 demonstrates that an overwhelming majority of polling place voters in our sampled precincts possessed active state-issued ID. The table reports two quantities: the number of voters by their affidavit status and possession of state-issued ID and the percentage of voters within each affidavit category that possessed state-issued ID. The first row focuses on those voters who did not file an affidavit, and thus presumably could access one of the requisite forms of photo ID when voting. Among these voters, 99.3 percent possessed active state-issued ID, 0.6 percent did not possess state-issued ID and so presumably showed an alternative ID, and 0.1 percent could not have their status determined based on the information that we provided to the Bureau of Elections.

We are most interested in the rate of active state-issued ID possession among those voters who filed an affidavit that was signed by an election inspector because this is the

Table 2: Most People Who Filed an Affidavit Possess State-Issued Identification

<i>Filed an Affidavit?</i>	<i>Does Voter Possess State-Issued Identification?</i>							
	<i>Yes</i>		<i>No</i>		<i>Unknown</i>		<i>Total</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
No	670,443	99.3	4,147	0.6	352	0.1	674,942	100.0
Yes, signed	1,687	95.7	65	3.7	11	0.6	1,763	100.0
Yes, unsigned	2,176	97.6	51	2.3	3	0.1	2,230	100.0
Yes, unknown signature	153	97.5	4	2.5	0	0.0	157	100.0
Total	674,459	99.3	4,267	0.6	366	0.1	679,092	100.0

clearest sign that a voter could not access one of the requisite forms of photo ID when he or she showed up to vote. The second row of Table 2 reports that 95.7 percent of these voters possessed state-issued ID. While notably lower than what we observed among those voters who did not file an affidavit, the finding that an overwhelming majority of those who could not access ID did in fact possess it challenges previous analyses that assume that the burdens of strict voter ID laws fall primarily on those who do not possess state-issued ID.

The data in the third row of Table 2 show that 97.6 percent of voters who filed an affidavit that was not signed by an election inspector possessed state-issued ID. This is higher than the rate of possession among voters who filed signed affidavits and lower than that of voters who did not file an affidavit, which is what we would expect to observe if unsigned affidavits are a combination of necessary and unnecessary affidavits.

Finally, the data in Table 2 demonstrate that most voters who do not possess state-issued ID are not filing affidavits. Aggregating over signed, unsigned, and unknown affidavits, the “No” column in Table 2 shows that only 2.8 percent of voters (120 of 4,267 voters) who do not possess state-issued ID filed an affidavit. This suggests that most of these voters possessed and could access one of the alternative forms of photo ID that Michigan allows voters to show to verify their identity.

### C. Robustness

There are a number of potential internal or external validity concerns about our estimates, each of which we can empirically assess.

#### 1. Missing Affidavits

With respect to internal validity, some of the municipalities with at least one precinct in our sample failed to fulfill our public records request. Thus, if affidavits were filed at different rates in these precincts, it could bias our estimates. However, in fact, our results would be nearly identical if we had received affidavits from all the precincts in our sample.

We were able to obtain affidavits for 839, or 97.2 percent, of the 863 precincts in our sample. Moreover, we can get a sense of how many affidavits were filed in the 24 missing precincts using a precinct-level report produced by the Michigan Secretary of State’s office. Figure A4 in the Appendix shows that this report usually produces an accurate count of the number of affidavits that we collected in our sampled precincts. According to this report, there were 76 affidavits filed in the sampled precincts that failed to respond to our request. Given that the voter file shows there were 19,194 polling place voters in these same precincts, we conclude that about 0.4 percent of voters filed affidavits in these precincts, which is just slightly lower than the 0.61 percent of voters who filed affidavits in the sampled precincts that responded to our request, according to Table A3 in the Appendix.

## 2. Matching Affidavits

Another internal validity concern is that we may systematically misclassify whether an affidavit was filed in one of our sampled precincts, either because a registrant moved after the election, the voter file does not contain the registrant's correct precinct, or the affidavit was matched to the wrong registrant. However, our method of identifying whether an affidavit was filed in a sampled precinct also does not affect our substantive conclusions.

The potential for misclassification arises because a number of municipalities provided us with all the affidavits filed throughout the municipality, rather than only those affidavits filed in sampled precincts. As a result, we identify whether an affidavit was filed in a sampled precinct based on the precinct of registration of the registrant to which the affidavit was matched. Thus, two forms of misclassification are possible. First, an affidavit filed in a sampled precinct could match to a registrant with a precinct of registration that was not included in the sample. Second, an affidavit filed in a non-sampled precinct could match to a registrant with a precinct of registration that was included in the sample. There are a number of reasons why this misclassification could happen, including if the registrant moved after the election, the voter file does not contain the registrant's correct precinct, or the affidavit was matched to the wrong registrant.

To examine whether misclassification affects our conclusion, we audited a random sample of 500 of the 12,751 affidavits that we matched to the voter file. In our audit sample, 180 affidavits were coded as being filed in a sampled precinct and 320 were coded as being filed in a non-sampled precinct. Using information available on the affidavits, we assessed whether these affidavits were in fact cast in a sampled precinct. We found eight cases where we should have coded an affidavit as being filed in a sampled precinct and six cases where we should not have coded an affidavit as being filed in a sampled precinct. In addition, we manually identified whether each of the 154 affidavits that we could not match to the voter file were cast in a sampled precinct, and found that 31 were. Based on these findings, we conclude that while there may be about 100 more affidavits cast in sampled precincts than we are accounting for in our analysis, including these affidavits in our analysis would be unlikely to affect our substantive conclusions.

## 3. Strategic Affidavits

Finally, there is an external validity concern about whether voters who lack access to ID may have strategically voted using an absentee ballot, which does not involve showing a photo ID. According to the Michigan statewide voter file, 26.6 percent of votes were cast absentee in 2016, but there is no evidence suggesting that voters who lacked access to ID in Michigan disproportionately cast absentee ballots, and thus avoided filing affidavits.

First, we constructed a predicted probability that every absentee voter in a sampled precinct would have lacked access to ID if they voted at a polling place, using the regression results report in Column 4 of Table 1. The average predicted probability is 0.39 percent, which is less than the observed rate among polling place voters. Thus, there is no

evidence that the observable characteristics of absentee voters makes them more predisposed to lack access to ID than polling place voters. It still could be the case that the unobservable characteristics of those who lack access to ID make them more likely to vote absentee than at a polling place. This could happen, for example, if registrants believe that access to ID is required to vote at a polling place, but not required to vote absentee. However, our data on the possession of state-issued ID suggest that this is not the case, as absentee voters were only slightly less likely to possess state-issued ID than were polling place voters (99.2 vs. 99.3 percent).

Another way to assess whether absentee voters are less likely to have access to ID than polling place voters is to look at how the rate of filing affidavits changes among polling place voters above and below the age of 60. Being over 60 is one of the six possible reasons a registrant could have requested an absentee ballot in the 2016 presidential election.<sup>5</sup> If voters who lack access to ID are selecting into absentee voting, we would expect the share of polling place voters who file affidavits to be lower when voters have greater access to absentee voting. The top panel of Figure A5 in the Appendix shows that voters just over the age of 60 were more likely to cast absentee ballots than voters just under the age of 60. However, the middle and bottom panels of Figure A5 show no evidence that polling place voters just above and just below age 60 differ in their likelihood of filing affidavits. Although this analysis is admittedly underpowered to detect modest changes, it is consistent with the evidence presented in the previous paragraph suggesting that absentee voters are unlikely to be substantially more likely to lack ID than polling place voters.

## V. MISINFORMATION

The number of voters who lacked access to ID when voting in the 2016 presidential election in Michigan represents an upper bound on the number of voters who could have been de jure disenfranchised had Michigan adopted a strict rather than non-strict photo ID law for that election. In Section D of the Appendix, our back-of-the-envelope calculation shows that the potential electoral consequences of such de jure disenfranchisement is less than many have asserted. But, by design, this calculation does not capture any de facto disenfranchisement that results from the presence of a non-strict ID law to begin with. People who lack access to ID could be disenfranchised by a non-strict voter ID law if they never show up to the polls because they mistakenly believe that showing an ID is required to cast a ballot.

To explore the potential for non-strict voter ID laws to cause de facto disenfranchisement, we test the public's understanding of voter ID policy by asking them what

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<sup>5</sup>The others are if the registrant (2) expected to be away from his or her community of residence the entire time polls are open on Election Day, (3) was physically unable to attend the polls, (4) was prevented from attending the polls due to religious reasons, (5) was serving as an election inspector in a different precinct than the precinct of residence, or (6) was confined in jail awaiting trial.

would happen if someone forgot to bring photo ID with them to their polling place on Election Day in their state. Consistent with previous literature (Barreto et al. 2012; Hobby et al. 2015; DeCrescenzo & Mayer 2019), we show that the public is quite misinformed about whether photo ID is required to vote and, specifically, that people in states with a non-strict photo ID law are more likely to wrongly believe that photo ID is required to vote than are people in states without any voter ID law.

The question was asked as part of the NBC SurveyMonkey Election Integrity Poll conducted from January 30 to February 1, 2018. This online poll was a non-probabilistic sample of 4,424 adults that uses survey weights, which we employ in our analysis, to be demographically representative of the national voting-age population on many dimensions. The full wording of the question was as follows:

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To the best of your knowledge, if you forget to bring your photo identification (e.g., driver's license, passport) to your polling place in your state on Election Day, can you still vote?

- Yes, you can vote
  - Yes, but only after filling out additional paperwork or showing other forms of identification such as a utility bill or bank statement or other non-photo identification
  - Yes, but your vote will only count if you provide election officials with photo identification within a few days of the election
  - No, you can't vote without photo identification
- 

Table 3 shows how the responses to this question varied as a function of the voter ID policy in a state. Column 2 shows how people who lived in states, like Michigan, with a non-strict photo ID law respond to this question. About 56 percent of respondents in these states answer that you cannot vote without photo ID. The 136 respondents from Michigan answered this question similarly to respondents from other states with a non-strict photo ID law, with about 55 percent saying that you could not vote without photo ID.

Table 3: What People Believe About Their State's Voter ID Law

<i>ID Requirement</i>	<i>Strict</i>	<i>Not Strict</i>	<i>Not</i>		<i>None</i>	
			<i>Strict</i>	<i>Non-Non-</i>		
<i>Which ID?</i>	<i>Photo</i>	<i>Photo</i>	<i>Photo</i>	<i>Photo</i>	<i>None</i>	<i>(Total)</i>
<i># of Respondents</i>	616	999	280	761	1,768	4,424
<i># of States</i>	7	10	3	14	17	51
Yes, you can vote regardless	7.7	15.3	11.5	18.5	38.3	24.1
Yes, but with add'l paperwork or other forms of ID	17.1	21.4	22.6	20.4	16.2	18.6
Yes, but ID must be provided within a few days	6.1	5.6	5.9	5.2	4.3	5.1
No, you cannot vote	66.5	55.6	55.2	52.0	37.8	49.1
No answer	2.5	2.1	4.7	3.8	3.4	3.1

NOTES: Cells show the percentage of respondents reporting each row's answer by state voter ID law in their state of residence.

State ID laws as reported by National Conference of State Legislatures (2018) in February 2018.

Table 3 also shows that respondents living in a state with a non-strict voter ID law were more likely to think that it was necessary to show photo ID to vote than respondents living in a state with no voter ID law at all. However, even in the 17 states without any voter ID law, 38 percent of respondents said that showing photo ID was necessary to vote. This share increases by between 14 and 18 percentage points in states with non-strict voter ID laws.

These findings are consistent with the hypothesis that non-strict voter ID laws could de facto disenfranchise some people who are eligible to vote by deterring them from showing up to the polls. However, a few caveats are in order. First, this analysis is purely correlational, and it could be the case that there are other features of the states with voter ID laws, besides the law itself, that cause more people to think that an ID is necessary to vote. Second, respondents who have ready access to a current, state-issued ID have little motivation to learn the specifics of the voter ID law in their state, as the law would not affect them. So observing that a substantial number of people hold incorrect beliefs does not necessarily mean that a substantial number of people who lack access to ID hold incorrect beliefs. Finally, the survey may overstate the share of the population that understands their state's voter ID law given that public opinion surveys tend to over-represent the responses of individuals who are more civically and politically engaged (Pew Research Center 2012).

## VI. DISCUSSION

Because our study focuses on a single state with a non-strict voter ID requirement, we should consider its limitations when trying to learn about the potential burdens of strict voter ID laws in other states. The marginal burden of shifting from a non-strict to strict voter ID law may vary over states because of differences in state policies, differences in demographics, and differences in implementation.

One of our key findings is that about 0.45 percent of Michigan voters lacked access to photo ID when voting in the 2016 presidential election. However, we expect there to be states in which more voters lack access to one of the accepted forms of ID than in Michigan. Our results show that a higher share of registrants in Michigan possess state-issued ID than studies have shown in other states. Further, we need to consider how the acceptable alternative forms of identification in Michigan compare to the acceptable alternative forms of identification in other states. For example, Michigan accepts high school student ID cards, which would not satisfy the ID requirement in Wisconsin, a neighboring state that has a strict ID law. Michigan also accepts expired state-issued identification, whereas in Virginia, another state with a strict ID law, voters must cast a provisional ballot when their identification has been expired for more than one year.

These findings also may not generalize to other states with different demographics than those in Michigan. We find that minority voters were about five times more likely to lack access to photo ID than white voters, and that blacks were more likely than other minorities to lack access to photo ID. Thus, the differential impact may not be the same in states where the minority population share differs or comes from a different racial or ethnic background than Michigan's, which has a minority population that is disproportionately black and Arab American relative to the rest of the county.

These caveats about external validity notwithstanding, the results present a strong challenge to previous estimates of the impact voter ID laws have on turnout. Hajnal et al. (2017), for example, suggest that moving from a non-strict to a strict photo identification law reduces minority turnout relative to white turnout by more than 5 percentage points. While Grimmer et al. (2018) cast doubt on the claim based on its methodology, our results cast doubt on the claim based on its substantive finding: although the conditions for disparate racial impact are present, the magnitude of such disparate racial impact is likely substantially lower than 5 percentage points. The share of voters who lacked access to photo ID in the 2016 presidential election represents an upper bound on the share who would be de jure disenfranchised had a strict photo ID law had been in place. Some voters who could not access their photo ID would have retrieved it had it been necessary in order to vote. Other voters in Michigan have learned over time that they do not need to show photo ID to be eligible to vote given that this was the fifth federal election in which a non-strict photo ID law had been in place. If a strict photo ID law were to be implemented, some of these voters would have brought their photo ID, in part because campaigns would be actively informing them about the necessity of doing so (Neiheisel & Horner 2019).

Finally, our results highlight that state implementation will affect the consequences of moving from a non-strict to strict ID law. State policies likely affect the degree of voter misinformation about ID laws. It is precisely because of misinformation that one should not necessarily conclude that voter ID laws disenfranchise few people on the basis of the findings in this article. Although our results suggest that the population that could be disenfranchised by moving from a non-strict to strict voter ID law in Michigan is relatively small, our results cannot speak to how many more people would have voted in Michigan in the absence of any voter ID law at all. The standard assessment of the burden of voter ID law assumes that people are perfectly informed about the specifics of the law. Under such an assessment, non-strict laws do not burden voters, as the law de jure disenfranchises no one. Previous work highlights that people may be de facto disenfranchised because they do not know about voter ID laws, and hence may fail to bring the ID that they possess to the polls. For example, Barreto et al. (2012) found that roughly 37 percent of voting-age Pennsylvanians were unaware of the state's new strict photo ID requirement, prompting concern that voters who possess ID would come to the polls on Election Day without being able to access them and be turned away. Our survey results suggest a different concern, which is that would-be voters think they have to provide ID where no such requirement exists, and, thus, those who lack access to ID may be deterred from going to the polls in the first place. If the presence of a non-strict law is what causes some voters to believe that they are unable to vote, such policies still may impose a burden on voters.

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## APPENDIX A: MATCHING AFFIDAVITS TO VOTER FILE

A team of coders searched the Michigan voter file to match each affidavit to the registrant who filed it. Coders were initially restricted to searching the voter file for registrants within the municipality in which the affidavit was filed, but a coder could record that an affidavit needed further examination when no registration record was sufficiently similar to the affidavit or when two or more registrants matched equally well to the affidavit.<sup>6</sup> Coders also noted whether the election inspector signed the affidavit, when that information was available. A third coder investigated further when there was disagreement between the initial two coders.

When no initial registration match was identified by the coders for a given affidavit, we searched the voter file for potential matches both within and outside the municipality. Specifically, we searched for any registrant with the same first and last name as listed on the affidavit or the same street number, first four letters of address, and county as listed on the Application to Vote. We then used the auxiliary information on both the Application to Vote and voter file to determine whether we found a match. In less than 0.5 percent of cases, multiple registrants were equally plausible matches to an affidavit. In these cases, we coded each plausible match and randomly selected one of them. We made a final labor-intensive search within the voter file for affidavits that remained unmatched to a registration record. This largely consisted of searching the voter file for alternative spellings of names and addresses, especially when the information on the affidavit or Application to Vote was difficult to read.

## APPENDIX B: UNSIGNED AFFIDAVITS AND VOTER ACCESS TO ID

Some of the affidavits we observe were filled out by voters, but not signed by election inspectors. If both voters and election inspectors had perfectly followed state election procedures, we would not expect to observe any such partial affidavits. Rather than assume that all these partial affidavits were a result of inspector error (i.e., voter lacked access to ID, but election inspector did not sign) or voter error (i.e., voter had access to ID

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<sup>6</sup>In Detroit, this search was restricted to a subset of precincts, which are substantially larger than most municipalities in the data.

and filled out affidavit unnecessarily), we instead attempt to estimate the share of partial affidavits that were a result of these two forms of error.

Let  $\alpha$  represent the share of unsigned affidavits that were a result of inspector error rather than voter error. To solve for  $\alpha$ , we first decompose  $p(\textit{possess} \mid \textit{unsigned})$ , the probability that someone possesses state-issued identification given that he or she filled out an unsigned affidavit, as shown in Equation (A1).

$$p(\textit{possess} \mid \textit{unsigned}) = \alpha p(\textit{possess} \mid \textit{inspector error}) + (1 - \alpha) p(\textit{possess} \mid \textit{voter error}) \quad (\text{A1})$$

Equation (A2) then rearranges terms to solve for  $\alpha$ :

$$\alpha = \frac{p(\textit{possess} \mid \textit{unsigned}) - p(\textit{possess} \mid \textit{voter error})}{p(\textit{possess} \mid \textit{inspector error}) - p(\textit{possess} \mid \textit{voter error})} \quad (\text{A2})$$

We cannot directly solve for  $\alpha$  using Equation (A2) because, while we can observe  $p(\textit{possess} \mid \textit{unsigned})$ , we do not observe either  $p(\textit{possess} \mid \textit{inspector error})$  or  $p(\textit{possess} \mid \textit{voter error})$ . However, we do observe quantities that can be used to approximate  $p(\textit{possess} \mid \textit{inspector error})$  and  $p(\textit{possess} \mid \textit{voter error})$  under certain assumptions. First, we observe  $p(\textit{possess} \mid \textit{no affidavit})$ , the probability that a voter possesses state-issued identification given that the voter voted without filing an affidavit. If we assume that the rate of possessing state-issued identification is the same among those voters who unnecessarily filled out an affidavit and those voters who did not fill out any affidavit, then  $p(\textit{possess} \mid \textit{voter error}) = p(\textit{possess} \mid \textit{no affidavit})$ . Second, we observe  $p(\textit{possess} \mid \textit{signed})$ , the probability that someone possesses state-issued identification given that he or she filed an affidavit signed by an election inspector. If we assume that whether an election inspector signs a necessary affidavit is unrelated to whether a voter possesses state-issued identification, then  $p(\textit{possess} \mid \textit{inspector error}) = p(\textit{possess} \mid \textit{signed})$ . Equation (A3) shows how we can estimate  $\hat{\alpha}$  when applying these two assumptions.

$$\hat{\alpha} = \frac{p(\textit{possess} \mid \textit{unsigned}) - p(\textit{possess} \mid \textit{no affidavit})}{p(\textit{possess} \mid \textit{signed}) - p(\textit{possess} \mid \textit{no affidavit})} \quad (\text{A3})$$

We use the data presented in Table 2 to estimate  $\hat{\alpha}$ . A total of 97.6 percent of voters who filled out affidavits that were unsigned by an election inspector possessed state-issued identification, which is higher than the rate of possession among voters who filled out signed affidavits and lower than the rate of possession among voters who did not fill out an affidavit. This is consistent with our expectations given that we expect voters who cast an unsigned affidavit are a mixture of voters who could not access identification and voters who filed out the form despite having access to identification. When we apply Equation (A3) to these data, we calculate that  $\hat{\alpha} = \frac{97.6 - 95.7}{99.3 - 95.7} \approx 0.518$ . In words, this means that we estimate that just over half of unsigned affidavits were unsigned because of election inspector error, with the remainder being affidavits that were unnecessarily filled out by a voter with access to identification.

We could not observe whether or not an election inspector signed some of the affidavits filed in our sample, usually because the municipality just provided the voter-specific information contained on the affidavit rather than a scan of the affidavit itself. Let  $\gamma$  represent the share of unvalidated affidavits that were a result of inspector error rather than voter error. To estimate  $\gamma$ , we decompose  $\gamma$  using Equation (A4).

$$\gamma = p(\text{possess} \mid \text{unknown}, \text{signed})p(\text{signed} \mid \text{unknown}) + p(\text{possess} \mid \text{unknown}, \text{unsigned})p(\text{unsigned} \mid \text{unknown}) \quad (\text{A4})$$

Equation (A5) shows how we can solve for  $\hat{\gamma}$  assuming that  $p(\text{possess} \mid \text{unknown}, \text{signed}) = p(\text{possess} \mid \text{signed}) = 1$ ,  $p(\text{signed} \mid \text{unknown}) = p(\text{signed} \mid \text{known})$ ,  $p(\text{possess} \mid \text{unknown}, \text{unsigned}) = p(\text{possess} \mid \text{unsigned})$ , and  $p(\text{unsigned} \mid \text{unknown}) = p(\text{signed} \mid \text{known})$ . Plugging in the observed values gives us  $\hat{\gamma} \approx 0.732$ .

$$\hat{\gamma} = \frac{\# \text{signed}}{\# \text{signed} + \# \text{unsigned}} + \hat{\alpha} \frac{\# \text{unsigned}}{\# \text{signed} + \# \text{unsigned}} \quad (\text{A5})$$

## APPENDIX C: IMPUTING RACE AND ETHNICITY OF REGISTRANTS

Because Michigan’s voter file does not contain information on race or ethnicity, we used the R package “wru: Who Are You? Bayesian Prediction of Racial Category Using Surname and Geolocation” developed by Imai and Khanna (2016) to construct predicted probabilities that each registrant is white, black, Hispanic, Asian, or some other race. The package combines information on a registrant’s surname and location of residence to impute these probabilities. Although Michigan’s voter file contains information on the surnames of registrants, it does not include information on a registrant’s census block or tract of residence. To obtain this information, we geocoded every address in the voter file using the website Geocodio. Geocodio takes as an input an address and returns information about the longitude and latitude of the address, the process through which this longitude and latitude is estimated, and the census block and census tract of this residence.

A small percentage of the longitude and latitudes returned by Geocodio triggered some data-quality concerns. We flagged observations in which (1) the geocoded census block of residence was in a different county than the county of registration, (2) the longitude and latitude of residence was determined using generic information about the census place of residence or the center of the street of residence, or (3) the accuracy score assigned to the match was below Geocodio’s recommended threshold for a high-quality match.

Table A1 shows that for about 95 percent of registrants, we calculated race probabilities based on their census block group of residence. However, the other 5 percent were calculated based on the modal census tract of their precinct, which we define as the census tract where the most non-flagged registrants were located. These 5 percent were

Table A1: Racial Imputations by Geography

	<i>All Precincts in 20% Sample</i>		<i>Only Precincts in 20% Sample with Inspector Signature Field</i>	
	<i>MatchedAffidavits</i>	<i>Polling PlaceVoters</i>	<i>Signed, MatchedAffidavits</i>	<i>Polling PlaceVoters</i>
By block	3,999	644,767	1,690	617,715
By modal tract in precinct	207	37,711	88	36,375

selected for one of two reasons: (1) we flagged the geocode for one of the three reasons listed in the previous paragraph or (2) the longitude and latitude of the residence show that it is located more than five miles away from the average location of a non-flagged residence in the precinct.

## APPENDIX D: ELECTORAL CONSEQUENCES

In this section, we use our estimates about access to ID to assess the electoral consequences of Michigan’s voter ID law in 2016. This analysis is motivated by the fact that Michigan and Wisconsin were two of the closest states in the 2016 presidential election, with Trump winning these states by 10,704 and 22,748 votes, respectively. One difference between the two states is that Michigan had a non-strict photo ID law, while Wisconsin had a strict photo ID law. As a result, voters in Wisconsin who could not access ID were not able to vote, unlike in Michigan. In fact, some journalists attributed Trump’s victory in Wisconsin to its strict photo ID law, claiming that it suppressed a sufficient number of voters who disproportionately favored Democratic candidates to tip the scales in Trump’s favor (Berman 2017).

To evaluate this claim, we assess the number of votes that Democratic candidates likely netted from people who filed affidavits. Let  $\Delta DemVotes$  represent this quantity. Further, let  $Votes$  be the total number of ballots cast at a polling place and  $p(Affidavit)$  be the probability of filing a valid affidavit. Finally, let  $p(Dem | Affidavit)$  be the probability that a voter who files a valid affidavit supports the Democratic candidate and  $p(Rep | Affidavit)$  be its complement.

Equation (A6) thus shows how to calculate  $\Delta DemVotes$  based on  $Votes$ ,  $p(Affidavit)$ ,  $p(Dem | Affidavit)$ , and  $p(Rep | Affidavit)$ . Note that this represents an upper bound on the electoral consequences because some people who lacked access to ID in Michigan would have been able to access ID if access was required in order to vote.

$$\Delta DemVotes = Votes * p(Affidavit) * p(Dem | Affidavit) - p(Rep | Affidavit) \quad (A6)$$

We know  $Votes$  is equal to 3,620,639, based on data published in the 2016 Election Administration Voting Survey, and that our best estimate of  $p(Affidavit)$  is 0.0045, based on Table 1. A challenge with assessing  $p(Dem | Affidavit)$ , or its complement, is that we do not observe the vote choices of those who lack access to ID, nor, in Michigan, do we observe their partisan identification. Instead, we extrapolate an estimate of the partisan preferences of voters who filed affidavits based on the subset of voters who participated in the 2016 presidential primaries.

Table A2 shows that while affidavit filers in the general election were more likely to cast a Democratic ballot in the primary than voters who did not file an affidavit, much of this difference can be explained by differences in the observable characteristics of those who do and do not file an affidavit. Once we control for the race, gender, and age of voters, as well as the demographics of the area they reside in, we find in Column 4 that voters filing an affidavit are about 4.5 percentage points (s.e. 1.3 percentage points) more likely to have cast a Democratic ballot than voters not filing an affidavit. This finding suggests that voters who lack access to photo ID when voting are disproportionately Democrats, mostly because minorities and young voters are more likely to lack

Table A2: Ballot Choice in the 2016 Presidential Primary (1 = Democratic, 0 = Republican)

	(1)	(2)	(3)	(4)
Constant	0.4700 (0.0087)	0.3601 (0.0060)	0.4732 (0.0090)	2.5233 (0.2172)
Filed affidavit	0.2401 (0.0182)	0.0727 (0.0133)	0.0559 (0.0131)	0.0453 (0.0129)
Probability race = black		0.6613 (0.0074)	0.6406 (0.0072)	0.5764 (0.0107)
Probability race = Hispanic		0.3255 (0.0167)	0.2982 (0.0165)	0.2770 (0.0166)
Probability race = Asian		0.2806 (0.0240)	0.2645 (0.0223)	0.2477 (0.0201)
Probability race = other		0.5375 (0.0571)	0.4965 (0.0533)	0.4424 (0.0447)
Gender = female			0.0758 (0.0018)	0.0757 (0.0018)
Born in 1910s			-0.1277 (0.0944)	-0.1429 (0.0914)
Born in 1920s			-0.1753 (0.0168)	-0.1684 (0.0164)
Born in 1930s			-0.2028 (0.0094)	-0.1922 (0.0088)
Born in 1940s			-0.1896 (0.0073)	-0.1790 (0.0068)
Born in 1950s			-0.1695 (0.0066)	-0.1585 (0.0059)
Born in 1960s			-0.2074 (0.0064)	-0.1958 (0.0059)
Born in 1970s			-0.1430 (0.0062)	-0.1336 (0.0059)
Born in 1980s			-0.0536 (0.0060)	-0.0489 (0.0054)
% Workers commuting via car (tract)				-0.2818 (0.1072)
% Adults with any college education (tract)				-0.3745 (0.0518)
Logged per capita income (tract)				-0.1615 (0.0227)

NOTES: N = 292,637. Robust standard errors clustered by precinct in parentheses.

Table A3: Correlates of Filing an Affidavit When Voting at a Polling Place

	(1)	(2)	(3)	(4)
Constant	0.0061 (0.0004)	0.0025 (0.0003)	0.0094 (0.0009)	0.1047 (0.0258)
Probability race = nonwhite		0.0165 (0.0018)	0.0159 (0.0018)	0.0126 (0.0015)
Gender = female			0.0003 (0.0002)	0.0003 (0.0002)
Unknown decade of birth			-0.0255 (0.0020)	-0.0319 (0.0039)
Born in 1910s			0.0249 (0.0248)	0.0250 (0.0249)
Born in 1920s			0.0057 (0.0026)	0.0056 (0.0026)
Born in 1930s			-0.0026 (0.0009)	-0.0026 (0.0008)
Born in 1940s			-0.0044 (0.0007)	-0.0042 (0.0007)
Born in 1950s			-0.0047 (0.0007)	-0.0043 (0.0006)
Born in 1960s			-0.0046 (0.0007)	-0.0040 (0.0006)
Born in 1970s			-0.0038 (0.0007)	-0.0033 (0.0006)
Born in 1980s			-0.0026 (0.0007)	-0.0024 (0.0006)
Previously voted			-0.0041 (0.0005)	-0.0038 (0.0005)
% Workers commuting via car (tract)				-0.0095 (0.0092)
% Adults with any college education (tract)				-0.0069 (0.0046)
Logged per capita income (tract)				-0.0082 (0.0022)

NOTES: N = 686,684. Dependent variable is 1 when voter filed an affidavit, and 0 otherwise. Robust standard errors clustered by precinct in parentheses.

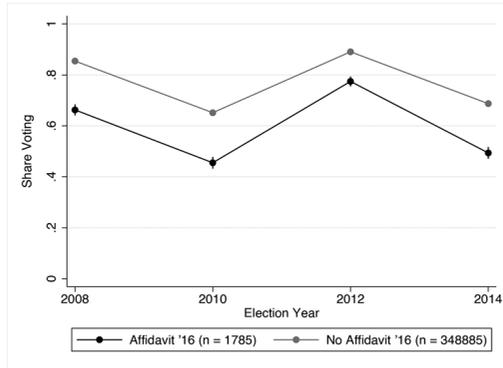
access to ID and also support Democrats. We use the coefficients from the regression reported in Column 4 to impute a probability that each of the voters who cast an affidavit in the 2016 presidential election would have supported a Democratic candidate. Based on this, we approximate that  $p(\text{Dem} | \text{Affidavit}) = 0.731$  and that  $p(\text{Rep} | \text{Affidavit}) = 0.269$ .

Inserting these values into Equation (A6) shows that Democrats netted about 8,000 votes in Michigan from voters filing affidavits, less than the total margin of victory.

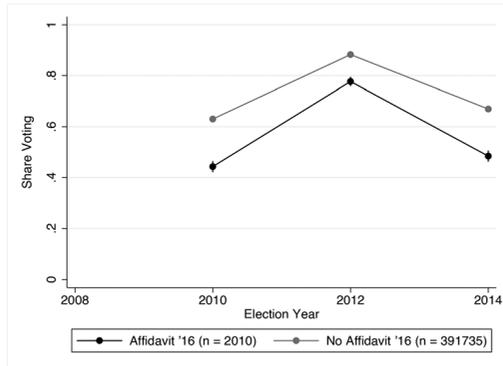
Some caveats must be applied to this finding. First, ballot choice in a primary election is not the same as candidate choice in a general election. Moreover, observable characteristics may map onto candidate choice differently for voters who do and do not vote in a primary. Thus, we should be careful not to interpret  $p(\text{Dem} | \text{Affidavit})$ , and hence our precise estimate of the potential electoral consequences, too literally.

Figure A1: Turnout of 2016 polling place voters who did and did not file an affidavit.

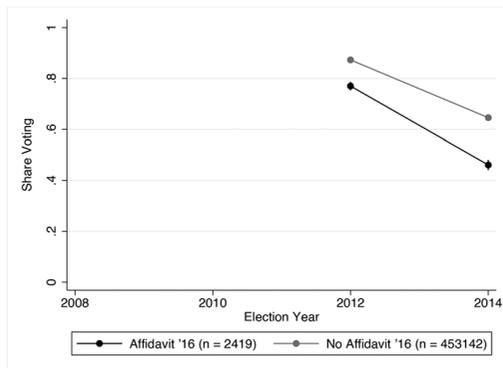
(a) Registered Since 9/30/2008



(b) Registered Since 9/30/2010



(c) Registered Since 9/30/2012



Notes: Bars represent the 95% confidence intervals.

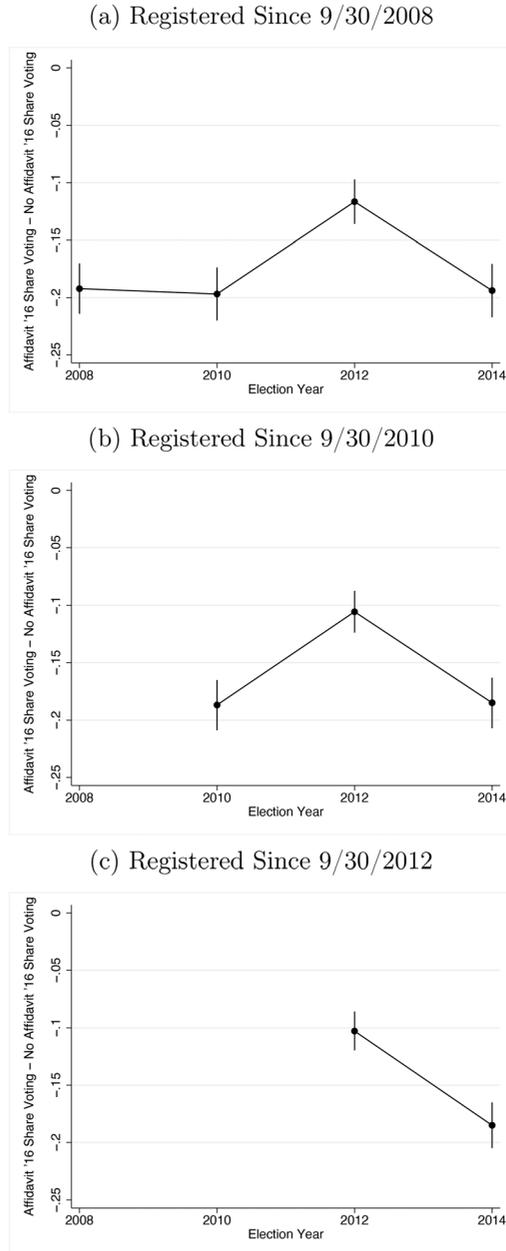
Table A4: Correlates of Filing a Signed Affidavit When Voting at a Polling Place

	(1)	(2)	(3)	(4)
Constant	0.0027 (0.0002)	0.0019 (0.0001)	0.0050 (0.0005)	0.0271 (0.0115)
Probability race = nonwhite		0.0037 (0.0007)	0.0035 (0.0007)	0.0026 (0.0006)
Gender = female			0.0002 (0.0001)	0.0002 (0.0001)
Unknown decade of birth			-0.0085 (0.0009)	-0.0120 (0.0019)
Born in 1910s			0.0349 (0.0273)	0.0350 (0.0273)
Born in 1920s			0.0039 (0.0019)	0.0038 (0.0019)
Born in 1930s			-0.0012 (0.0006)	-0.0013 (0.0006)
Born in 1940s			-0.0017 (0.0005)	-0.0017 (0.0005)
Born in 1950s			-0.0023 (0.0004)	-0.0022 (0.0004)
Born in 1960s			-0.0024 (0.0004)	-0.0022 (0.0004)
Born in 1970s			-0.0021 (0.0004)	-0.0020 (0.0004)
Born in 1980s			-0.0016 (0.0004)	-0.0015 (0.0004)
Previously voted			-0.0016 (0.0003)	-0.0015 (0.0003)
% Workers commuting via car (tract)				-0.0056 (0.0030)
% Adults with any college education (tract)				0.0002 (0.0024)
Logged per capita income (tract)				-0.0017 (0.0010)

NOTES: N = 658,013. Dependent variable is 1 when voter filed a signed affidavit, and 0 otherwise. Robust standard errors clustered by precinct in parentheses. Only voters from precincts in which we can observe whether the election inspector signed are included in sample.

More broadly, Equation (A6) suggests that the marginal effect of moving from a non-strict to strict voter ID law on election outcomes is likely to be smaller than many have speculated. Michigan had the smallest percentage difference between Trump and Clinton of any state in the 2016 presidential election, and it was decided by more than 8,000 votes. Moreover, our estimate of the electoral consequences represents an upper bound. A number of the clerks who we talked to had the impression that many of the voters who filed affidavits actually possessed photo ID, but did not have it with them when they showed up to vote (e.g., left their photo ID at home or in their car). Many of these voters would have been able to access it if were necessary to cast a ballot. The greater the share of such voters in the pool of affidavit filers, the more Equation (A6) will overstate the potential electoral impact of moving from a non-strict to strict voter ID law.

Figure A2: Difference in turnout between 2016 polling place voters who did and did not file an affidavit.

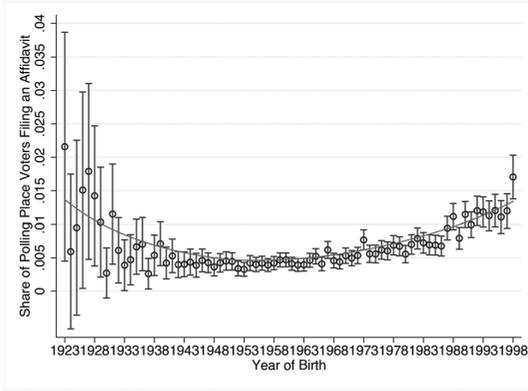


Notes: Bars represent the 95% confidence intervals.

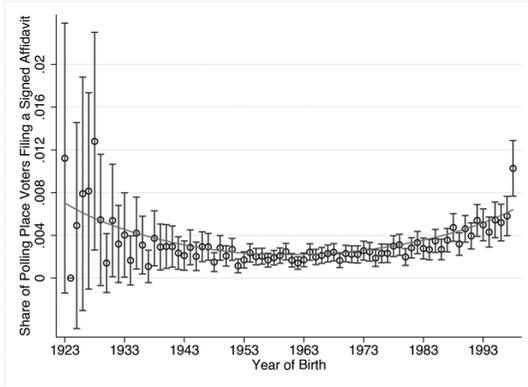
## APPENDIX E: ADDITIONAL TABLES AND FIGURES

Figure A3: Share of polling place voters filing affidavits by year of birth.

(a) All Affidavits



(b) Signed Affidavits



Notes: Bars represent the 95% confidence intervals.

Table A5: Which Minorities Lacked of Access to Photo ID When Voting at a Polling Place

	(1)	(2)	(3)	(4)
Constant	0.0045 (0.0003)	0.0025 (0.0002)	0.0080 (0.0006)	0.0505 (0.0158)
Probability race = black		0.0132 (0.0013)	0.0129 (0.0012)	0.0109 (0.0012)
Probability race = Hispanic		0.0032 (0.0009)	0.0025 (0.0009)	0.0017 (0.0008)
Probability race = Asian		-0.0002 (0.0008)	-0.0010 (0.0008)	-0.0002 (0.0008)
Probability race = other		0.0055 (0.0022)	0.0043 (0.0022)	0.0026 (0.0022)
Gender = female			0.0001 (0.0002)	0.0001 (0.0002)
Unknown decade of birth			-0.0158 (0.0038)	-0.0191 (0.0047)
Born in 1910s			0.0276 (0.0250)	0.0277 (0.0250)
Born in 1920s			0.0048 (0.0021)	0.0047 (0.0021)
Born in 1930s			-0.0019 (0.0007)	-0.0019 (0.0007)
Born in 1940s			-0.0031 (0.0006)	-0.0030 (0.0005)
Born in 1950s			-0.0035 (0.0005)	-0.0033 (0.0005)
Born in 1960s			-0.0034 (0.0005)	-0.0032 (0.0005)
Born in 1970s			-0.0029 (0.0005)	-0.0027 (0.0005)
Born in 1980s			-0.0021 (0.0005)	-0.0019 (0.0004)
Previously voted			-0.0033 (0.0003)	-0.0031 (0.0003)
% Workers commuting via car (tract)				-0.0064 (0.0047)
% Adults with any college education (tract)				-0.0026 (0.0030)
Logged per capita income (tract)				-0.0035 (0.0014)

NOTES: N = 686,684. Dependent variable is probability voter lacked access to photo ID given affidavit and election inspector signature status. Robust standard errors clustered by precinct in parentheses.

Figure A4: Comparison of number of affidavits per precinct in our data and the state-wide report.

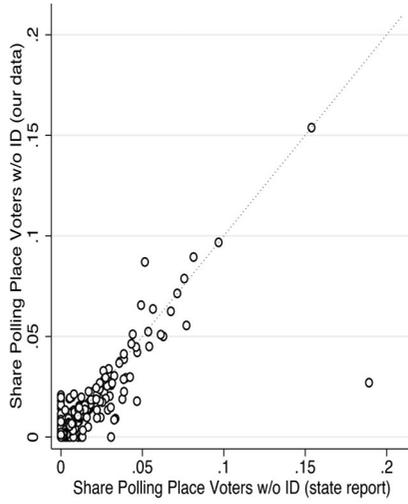
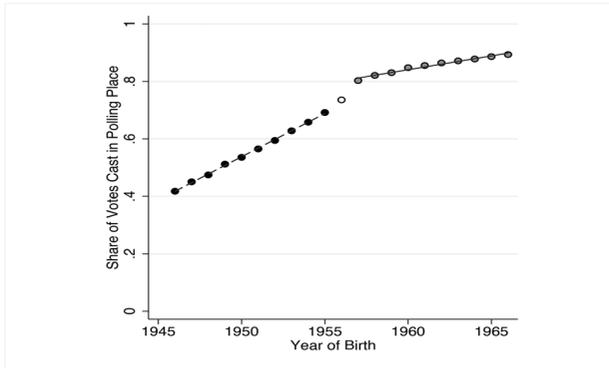
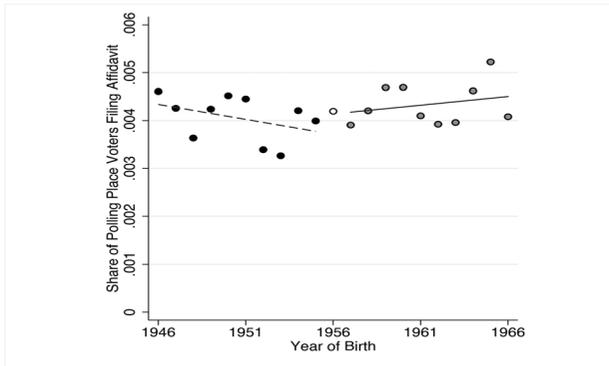


Figure A5: Rates of affidavit use by no-excuse absentee eligibility.

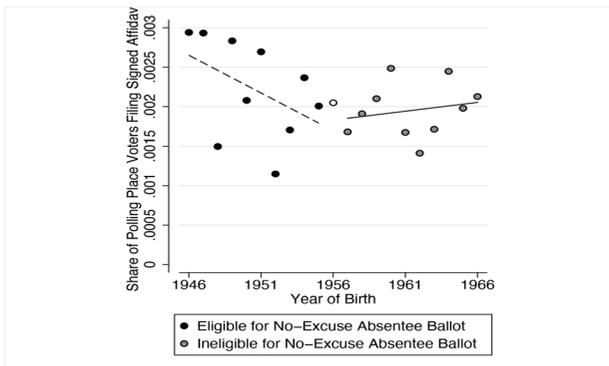
(a) Share of Votes Cast in Polling Place



(b) Share of Polling Place Voters Filing an Affidavit



(c) Sharing of Polling Place Voters Filing a Signed Affidavit



● Eligible for No-Excuse Absentee Ballot  
 ○ Ineligible for No-Excuse Absentee Ballot