

## **The Suppressive Effects of Voter ID Requirements on Naturalization and Political Participation**

John R. Logan  
Jennifer Darrah

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Since 2000 and stimulated by new security concerns after 9/11, there has been an upsurge in state requirements for voter identification. By 2004 a total of 19 states required some form of documentation of voters' identity, sometimes in the form of photo ID, and this trend has continued. The argument made on its behalf is that it is a necessary tool to prevent voting fraud, such as voting by non-citizens or people who are otherwise ineligible to register. Others argue that whatever its intention this requirement has the effect of suppressing electoral participation, particularly by minorities. The constitutionality of voter ID provisions is now under review by the U.S. Supreme Court with oral argument scheduled for January 9, 2008. The case (*Crawford v. Marion County Election Board*) challenges the 2005 Indiana law requiring all voters who cast a ballot in person to present a photo ID issued by the United States or the State of Indiana. Prior to enactment of this law a voter's signature in a poll book was accepted as evidence of their identity.

The purpose of this report is to provide new evidence on the effects of voter ID requirements. We extend previous studies to include not only voter turnout but also registration and – the key prior step for immigrants – the decision to become a citizen. We show that voter ID depresses participation in both naturalization and voting, a finding that has important implications for the political representation of members of every major racial and ethnic group. In particular:

1. In states with a voter ID policy in 2000 the odds of naturalization for foreign-born residents of the United States were reduced by more than 5%, with the strongest impact on Hispanics.
2. In election years from 1996-2004, the odds of being a registered voter among citizens aged 18+ were higher for whites in voter ID states by about 15%. But this effect was more than counterbalanced by a reduction in white voter turnout. In 2004 alone the net effect was to reduce white turnout in these states by about 400,000 votes.
3. In this same period, 1996-2004, voter ID policies reduced Asians' registration and diminished voter turnout by blacks and Hispanics. The estimated net reduction in minority voting in these states in 2004 was more than 400,000 votes.
4. The suppressive effect of voter ID disproportionately affected not only minorities, but also persons with less than a high school education and less than \$15,000 income, tenants, and recent movers. While persons with these characteristics are substantially less likely to participate in civic affairs regardless of their state of residence, they experience an additional significant reduction in participation relative to others in voter ID states.

## Background and research methods

To study naturalization by foreign born residents we rely on data from the 2000 Census of Population, using specifically the 5% Public Use Microdata Sample (PUMS). The PUMS has the advantage of very large sample size as well as a comprehensive set of indicators on relevant personal characteristics (such as age, language proficiency, years in the U.S., education, and occupation). For more details on our analysis of naturalization, see the working paper “The Political and Community Context of Immigrant Naturalization” by John Logan, Sookhee Oh, and Jennifer Darrah (<http://www.s4.brown.edu/voterid/citizenship%20final%201-4-08.pdf>).

Two recent reports have drawn on the 2004 Current Population Survey (CPS) as the basis for evaluating the effects of variations in state electoral policies. Using the CPS, researchers at the Eagleton Institute of Politics, Rutgers University, and the Moritz College of Law, Ohio State University, concluded that strict voter identification requirements depressed voting turnout in 2004, and that this effect was especially pronounced for minority voters (Eagleton Institute 2006). However another study by the Heritage Center for Data Analysis using the same data suggested that effects are mixed and small (Muhlhausen and Sikich 2007).

The CPS is a large recurring sample survey conducted by the Census Bureau for the U.S. Department of Labor. It includes indicators of many personal characteristics believed to be associated with voter participation, though it does not have measures of language proficiency. Our use of the CPS differs from prior studies in two major ways. First, in order to increase statistical power for group-specific analyses, we pool data from the CPS for the five election years 1996, 1998, 2000, 2002, and 2004, rather than studying a single year. Second, we look separately at the two components of participation: voter registration and voting. For further details on this analysis, see the working paper “Collective Influences on the Participation of Immigrants and Minorities in American Electoral Politics” by John Logan, Jennifer Darrah, and Sookhee Oh (<http://www.s4.brown.edu/voterid/Voting%20Logan%20et%20al.pdf>).

The November CPS in every even-numbered year includes self reports of voting or being registered for the November election in that year. The specific question about voting is: “In any election some people are not able to vote because they are sick or busy or have some other reason, and others do not want to vote. Did (you/name) vote in the election held on Tuesday, November \_?” This question is only asked about citizens aged 18 and above. A follow-up question is asked of those who were eligible to vote, but did not report having voted: “(Were you/Was ‘name’) registered to vote in the November \_\_ election?”

Our classification of state electoral policies is drawn from prior studies. We use information about state level policies in 2000 as indicators of state level policies in 1998 and 1996, since significant legislative and political activity to shift voter ID policies took place only after 2000 (Election Reform Information Project 2006). The classification for 2000 and before is from Election Reform Information Project (2006). The 2002 classification is from the Election Reform Information Project (2002), and 2004 is from the Eagleton Institute and Moritz College of Law (2006), with corrections from the Heritage Center for Data Analysis (Muhlhausen and Sikich 2007).

The Election Reform Information Project and Eagleton/Moritz both utilized five categories of voter ID policy (though they used slightly different classification systems). We collapsed these into a simple dichotomy: does the state request documentary evidence at the polls of the prospective voter’s identification? This is the same as what the Eagleton/Moritz study refers to as the maximum requirement, the Heritage Center treats as maximum requirement Provide ID (photo or non-photo), and the Election Reform Information Project lists as “ID required” or “ID optional.” States that do not require or request any form of ID have varying requirements and procedures for verifying the identity of potential voters, including having them state their name, sign their name, or match a signature with a signature on record.

Those that require or request ID also have varying policies. The forms of identification may include photo or non-photo ID. There are also differences in what a poll worker should do in case a prospective voter does not have an ID (sometimes called “minimum requirements”) and in rules specific to absentee voters, election-day registrants (where allowed), first time voters or those who have registered by mail (see Eagleton Institute and Moritz College of Law [2006] for a discussion of minimum vs. maximum requirements).

Our conclusions from these data are based on comparisons between states that did and those that did not have voter ID requirements in a given year. Because only a few states have changed their policies since 2000, and because these states probably differ in other significant ways from states that did not have a policy shift, it is not feasible to provide a simple before-after analysis of the impact of changes. Instead, like Eagleton/Moritz and the Heritage Center, we rely on assessing differences between states. To do this, and to rule out alternative interpretations of what might underlie the apparent effects of voter ID, we control for a large number of personal background characteristics, characteristics of the person’s neighborhood or metropolitan region, and other state electoral policies. Any remaining differences associated with voter ID after taking into account these other variables are interpreted as evidence of the effect of voter ID. Further research is needed to determine how this effect operates. Our view is that it is partly the result of people who appear at the polls and are not allowed to vote, partly due to people’s sense that their participation is not encouraged, and partly due to a broader community perception that their vote would not make a difference.

Appendix Table 1 summarizes our classification of states for each year. Only the 2000 voter ID classification was used for the analysis of naturalization using the 2000 Census microdata. In the pooled CPS files used for analysis of voter registration and voting, states are classified as of the relevant CPS year.

### **Voter ID and naturalization**

It is not intuitive to expect citizenship decisions to be contingent on voting regulations. However a considerable body of social science research now regards naturalization as partly a collective choice that reflects anticipation of exercising citizenship rights, including voting. Where there is a widespread belief among community members that being a citizen is empowering and that one of the benefits of naturalization will be effective participation in local and national affairs, people are more likely to choose to naturalize and to do so with less delay. Therefore our working hypothesis is that state policies that restrict the exercise of voting rights will depress the likelihood of naturalization.

To study this question, we selected foreign born residents of the U.S. age 18 and above. Table 1 reports analyses of the five percent microdata sample from Census 2000 (weighted to yield full population counts) showing citizenship status across racial/ethnic and age groups. The table reiterates what is already well known about the share of immigrants in the population. Among white and black adults well under 10% are foreign-born, while immigrants are a majority of Hispanics and more than three quarters of Asians. This means that naturalization has special importance for Hispanics and Asians. Non-Hispanic white and Asian immigrants are most likely to be citizens, followed by blacks and by Hispanics at a much lower level – only 30.1% of Hispanic adult immigrants are naturalized citizens, compared to the national average of 42.9% for all adult immigrants.

**Table 1. Nativity and Citizenship by Race/Ethnicity, Age 18+ in 2000**

	<b>Total</b>	<b>Native citizen</b>	<b>Naturalized Citizen</b>	<b>Non-citizen</b>	<b>% Foreign-born who are citizens</b>
<b>Non-Hispanic White</b>	150,488,985	144,134,950	3,628,743	2,725,292	57.1%
<b>Non-Hispanic Black</b>	23,934,416	21,991,077	920,830	1,022,509	47.4%
<b>Hispanic</b>	22,956,194	10,560,032	3,726,855	8,669,307	30.1%
<b>Asian</b>	8,751,867	2,016,716	3,497,736	3,237,415	51.9%
<b>Total</b>	209,299,602	181,392,928	11,984,238	15,922,436	42.9%

We tested the effect of voter ID policy on likelihood of naturalization for the full sample, then separately for non-Hispanic whites, non-Hispanic blacks, Hispanics, and Asians. Appendix Table 2 lists the variables included in multivariate logistic regression analyses. Table 2 summarizes the results only for the effects of voter ID (see the full working paper for details of those characteristics and coefficients for their effects).

**Table 2. Net effects on naturalization of living in a state with voter ID requirements, 2000 (controlling for other predictors)**

	<b>B</b>	<b>Standard error</b>	<b>Significance level</b>	<b>Estimated effect on odds</b>
<b>Non-Hispanic whites</b>	-0.002	0.003	n.s.	0.998
<b>Non-Hispanic blacks</b>	-0.054	0.005	<.001	0.948
<b>Hispanics</b>	-0.070	0.003	<.001	0.932
<b>Asians</b>	-0.045	0.004	<.001	0.956
<b>All races (pooled)</b>	-0.056	0.002	<.001	0.945

Voter ID requirements tend to suppress naturalization by immigrants – except for non-Hispanic white immigrants – with an average reduction of 5% in the odds of becoming a citizen.

### **Voter ID and political participation**

Prior studies have predicted voter turnout by registered voters. We expand the question by also examining registration, which is a prerequisite to voting.

Again we categorized them by race and Hispanic origin. Table 3 provides a starting point for the discussion. These data are taken from a pooled sample of citizens aged 18 and above in the Current Population Survey conducted in the five national election years during 1996-2004 (see details below on the data source and measurement). They show a marked disparity in voting between Hispanics and Asians, on the one hand, and blacks and non-Hispanic whites, on the other, reflecting what some authors call a “turnout gap” (Citrin and Highton 2002). This gap is due mainly to differences in voter registration (10-13 points), with an additional deficit in voting by Hispanic registered voters (5 points less than Asians and 7 points less than blacks and whites). The influence of nativity in its own right appears to be small except among Asians, for whom immigrants and the second generation children of immigrants are 10-12

points less likely to vote than those in the third and later generations. The opposite effect of nativity is found among Hispanics, with modestly higher voting turnout (due to greater likelihood that registered voters actually vote) among foreign-born citizens than in the 2<sup>nd</sup> and 3+ generations. What accounts for these patterns?

	<b>% Registered</b>	<b>% of registered who voted</b>	<b>Net % who voted</b>
<b>Non-Hispanic White</b>	79	78	62
<b>Non-Hispanic Black</b>	76	78	59
<b>Hispanic</b>	66	71	47
<b>Asian</b>	66	76	50

In analysis of the CPS data for 1996-2004 we again tested the effect of voter ID policy on likelihood of participation for the full sample, then separately for non-Hispanic whites, non-Hispanic blacks, Hispanics, and Asians. Appendix Table 3 lists the variables included in the multivariate logistic regression analyses. Table 4 summarizes the results for the effects of voter ID (see the full working paper for details of those characteristics and coefficients for their effects).

	<b>B</b>	<b>Standard error</b>	<b>Significance level</b>	<b>Estimated effect on odds</b>
<b>Registration:</b>				
<b>Non-Hispanic whites</b>	0.138	0.01	<.001	1.148
<b>Non-Hispanic blacks</b>	0.038	0.025	n.s.	1.039
<b>Hispanics</b>	0.026	0.036	n.s.	1.027
<b>Asians</b>	-0.146	0.064	<.05	0.865
<b>All races (pooled)</b>	0.103	0.009	<.001	1.108
<b>Voting:</b>				
<b>Non-Hispanic whites</b>	-0.108	0.012	<.001	0.898
<b>Non-Hispanic blacks</b>	-0.137	0.029	<.001	0.872
<b>Hispanics</b>	-0.203	0.049	<.001	0.816
<b>Asians</b>	0.009	0.089	n.s.	1.009
<b>All races (pooled)</b>	-0.123	0.01	<.001	0.884

Voter ID requirements reduce voter turnout in the pooled model in Table 4, but are positively related to voter registration. A slightly modified pattern is found in group-specific models. For whites the effect of voter ID requirements is positive on registration (increasing odds of registration by about 15%), but negative on voting (reducing odds of voting by about 10%). For blacks and Hispanics, there is no significant impact on registration but again a negative effect on voting (reducing the odds by about 14%

and 20%, respectively). For Asians, there is a negative effect on registration (an effect that disappears after controlling for Hawaii), but no effect on voting. For three of the four groups, therefore, voter ID substantially reduces electoral participation.

### **Impacts on specific subgroups**

The design of this analysis highlights the differential impacts of voter ID across racial and ethnic groups. A separate analysis of interaction effects not shown here showed that these differences are statistically significant. Voter ID has little effect on the odds of naturalization for non-Hispanic whites, and its largest effect is on Hispanics. It increases the odds of registration for whites while diminishing the odds for Asians. It reduces voter turnout for all groups except Asians, but especially for Hispanics.

There has been speculation that voter ID policies might have disproportionate effects on voting by the elderly, who after a certain age are less likely to maintain driver's licenses. We modified the pooled (all races) voting model to include a category of persons age 70 and above, and found no different effect of voter ID on this group than on persons of other ages. Nor did we find that foreign-born naturalized citizens were especially impacted.

On the other hand, we did find significant interaction effects with residential mobility, income, education, and home ownership when each of these was tested separately. This means that the effect of living in a voter ID state was greater for some categories of people than for others. In models with an interaction for duration of residence at the current address, we found that being in a voter ID state reduced the odds of voting by 22% for persons who lived at their current address for less than one year but only 15% for those with more than five years in their current home. The reduction in odds was 23% for persons with family income below \$15,000 but only 8% for those above \$75,000. The reduction for renters was 25% compared to 13% for homeowners, and 24% for those with less than high school education compared to 18% for those with more than a bachelor's degree.

Hence the suppressive effect of voter ID policies is not constant across the board, but most strongly impacts Hispanics, persons of lower socioeconomic status, and recent movers.

### **Magnitude of the effect of voter ID**

These results are expressed in logistic regression coefficients and estimated effects on the odds of a particular outcome. Given the large sample sizes, especially for the 2000 microdata, the statistical significance of effects is important but not an indicator of their absolute magnitude. How large a difference does voter ID make in the number of immigrants who become citizens, and the number of citizens of all backgrounds who register and vote in national elections? How do these effects vary across racial and ethnic groups?

Any approach to estimating the absolute size of effects will yield an approximation. Our models are specific to each racial and ethnic group, but they apply not to any specific state but rather to the set of all states with voter ID requirements. Therefore we must combine all voter ID states in order to yield an estimate. And because we gained statistical power by pooling cases across six waves of the CPS, we do not have separate coefficients for each election year. Our approach will be to apply the coefficients for all years 1996-2004 to data on registration and voting.

We will use 2000 as the year for naturalization and 2004, the most recent Presidential election, as the year for political participation. We begin with the actual average proportion of immigrants who naturalized, adult citizens who registered to vote, and registered voters who voted in a given year in all voter ID states combined. For naturalization these data are from Census 2000, and we used the PUMS dataset to

determine the group-specific figures in each state. To determine group-specific figures for registration and voting, we first aggregated data from the voter ID states from our pooled CPS samples. This provided an estimate of the racial/ethnic composition of registered voters and voters in these states in the whole period 1996-2004. We applied this estimate to the known state-level registration and voting data for 2004 from the U.S. Elections Assistance Commission 2004 Voting Day Survey (U.S. E.A.C. 2004).

Given these average values as a starting point, it is straightforward to calculate the odds of naturalization, registration, and voting, and then to use the logistic regression coefficients to see how different these odds are in voter ID states. Tables 6 and 7 show the actual numbers and percentages of naturalized citizens, registered voters, and voters. They show the estimated percentages that would be expected if there were no voter ID policy, and the corresponding change in the expected number of naturalized citizens, registered voters, and voters if the voter ID effect were removed. A positive number in the table's "estimated impact" means that without voter ID there would have been improved outcomes. A negative number means that there would have been worse outcomes.

<b>Table 5. Estimated impact of voter ID on naturalization in 2000 (in 15 states with voter ID policy)</b>				
	<b>Naturalized citizens</b>	<b>% naturalized of foreign born</b>	<b>Without voter ID: Estimated % naturalized</b>	<b>Estimated impact</b>
<b>Non-Hispanic white</b>	929,918	53.6%	53.7%	763
<b>Non-Hispanic black</b>	306,753	44.4%	45.7%	9,173
<b>Hispanic</b>	1,336,527	33.6%	35.2%	62,975
<b>Asian</b>	758,958	50.4%	51.6%	17,058
<b>Total all races</b>	3,350,780	42.1%	43.5%	109,465

Table 5 shows that without voter ID policies more than 100,000 immigrants would have become naturalized citizens as of 2000, and the majority of these would have been Hispanic. The percentage increase in naturalized citizens would be modest (109,000 added to more than 3.3 million). Whether the absolute number is "important" from a public policy standpoint is a matter of interpretation. Certainly other factors, such as age, years in the country, English language proficiency, and education have much stronger effects, but these are more difficult to influence through policy choices.

Table 6 shows that there are much larger effects on registration and voting. States with voter ID policies nearly a million more registered voters as a result, mostly due to the impact among whites. But they had 1.6 million fewer voters in 2004.

The positive effect on white registration was more than counterbalanced by diminished white voting. Since only about 70% of white registered voters actually voted, the positive impact on voting from increased registration was less than 600,000 (68.9% of 782,876). Hence the net negative effect (the positive effect on registration and the negative effect on voting) was to reduce white voter turnout by more than 400,000 in these states.

**Table 6. Estimated impact of voter ID on registration and voting in 2004  
(in 19 states with voter ID policy)**

	<b>Registered to vote</b>	<b>% registered of citizens age 18+</b>	<b>Without voter ID: Estimated % registered</b>	<b>Estimated impact</b>
<b>Non-Hispanic white</b>	46,142,565	88.3%	86.8%	-782,876
<b>Non-Hispanic black</b>	8,656,003	78.9%	78.3%	-70,533
<b>Hispanic</b>	4,553,589	75.7%	75.2%	-29,715
<b>Asian</b>	1,037,663	66.9%	70.0%	48,593
<b>Total all races</b>	60,389,820	85.3%	84.0%	-948,887

  

	<b>Voted</b>	<b>% voting of registered voters</b>	<b>Without voter ID: Estimated % voting</b>	<b>Estimated impact</b>
<b>Non-Hispanic white</b>	31,808,957	68.9%	71.2%	1,040,847
<b>Non-Hispanic black</b>	5,843,757	67.5%	70.4%	253,562
<b>Hispanic</b>	2,572,630	56.5%	61.4%	223,847
<b>Asian</b>	679,726	65.5%	65.3%	-2,104
<b>Total all races</b>	40,905,070	67.7%	70.3%	1,599,286

For both blacks and Hispanics, since registration was only modestly affected by voter ID, the negative effect on voting is paramount – a net reduction of about 200,000 votes for each group.

For Asians, the negative impact is on registration, reducing net participation in the 2004 election in these states by about 30,000 votes.

### **Conclusion**

Voter ID is one of many factors that influence civic participation in the United States, and its overall impact is negative. At a time when many public officials express regret that immigrants seem to lag in their participation in mainstream society, even small suppressive effects on naturalization – the formal step to becoming an American citizen – work in the wrong direction and should be taken into account as people evaluate the benefits and costs of more stringent identification requirements. As voter ID spreads to more states in the post-9/11 years, we can expect more people to be affected by it.

In 2004, despite higher white registration levels in voter ID states, the net effect was a substantial reduction in voter turnout. The reduction cut across racial and ethnic lines, but disproportionately affected blacks and Hispanics. It also disproportionately diminished electoral participation by citizens with lower income and education, tenants, and people who move more frequently. These groups already stand out for lower participation, and voter ID has the consequence of further reducing their engagement with the electoral system. In our view the selectivity of these suppressive impacts is their most objectionable feature. But even aside from placing a greater burden on some groups than on others, this is a policy that has not been shown to have any benefits. If reversing this policy in the 20 states that implemented it in 2004 could have increased overall turnout by registered voters by 1.6 million – from a rate of 67.7% to 70.3% – that is a strong argument in itself.

## References

- Citrin, Jack, and Benjamin Highton. 2002. "How Race, Ethnicity, and Immigration Shape the California Electorate." edited by Public Policy Institute of California. Public Policy Institute of California.
- The Eagleton Institute of Politics and Moritz College of Law. 2006. "Report to the U.S. Election Assistance Commission on Best Practices to Improve Voter Identification Requirements Pursuant to the Help America Vote Act of 2002 Public Law 107-252." The State University of New Jersey and The Ohio State University. Accessed March 2007.
- The Eagleton Institute of Politics and Moritz College of Law. 2007. "Report to the U.S. Election Assistance Commission on Best Practices to Improve Provisional Voting." The State University of New Jersey and The Ohio State University. [http://www.eagleton.rutgers.edu/News-Research/ProvisionalVoting\\_VoterID.html](http://www.eagleton.rutgers.edu/News-Research/ProvisionalVoting_VoterID.html). Accessed May 2007.
- The Election Reform Information Project and The Constitution Project. 2002. "Election Reform Briefing: Voter Identification." Washington DC. <http://www.electionline.org/Portals/1/Publications/Voter%20Identification.pdf>. Accessed April 2007.
- The Election Reform Information Project ("Electionline.org"). 2006. "Election Reform: What's Changed, What Hasn't and Why, 2000-2006." Washington DC. <http://www.electionline.org/Portals/1/Publications/2006.annual.report.Final.pdf>. Accessed October 2007.
- Muhlhausen, David B. and Keri Weber Sikich. 2007. "New Analysis Shows Voter Identification Laws Do Not Reduce Turnout." A Report of the Heritage Center for Data Analysis. <http://www.heritage.org/Research/LegalIssues/cda07-04.cfm>. Accessed October 2007.
- The United States Election Assistance Commission (U.S. E.A.C.). 2004. "2004 Election Day Survey: State Data Tables, State Level Summary." Washington DC. <http://www.eac.gov/clearinghouse/2004-election-day-survey/>. Accessed December 2007.

**Table 1. Classification of states by voter ID policy, 1996-2004**

<b>State</b>	<b>1996-2000</b>	<b>2002</b>	<b>2004</b>
1 Alabama			X
2 Alaska	X	X	X
4 Arizona			
5 Arkansas	X	X	X
6 California			
8 Colorado			X
9 Connecticut	X	X	X
10 Delaware	X	X	X
11 District of Columbia			
12 Florida	X	X	X
13 Georgia	X	X	X
15 Hawaii	X	X	X
16 Idaho			
17 Illinois			
18 Indiana			
19 Iowa			
20 Kansas			
21 Kentucky	X	X	X
22 Louisiana	X	X	X
23 Maine			
24 Maryland			
25 Massachusetts	X	X	
26 Michigan			
27 Minnesota			
28 Mississippi			
29 Missouri	X	X	X
30 Montana			X
31 Nebraska			
32 Nevada			
33 New Hampshire			
34 New Jersey			
35 New Mexico			
36 New York			
37 North Carolina			
38 North Dakota			X
39 Ohio			
40 Oklahoma			
41 Oregon			
42 Pennsylvania			
44 Rhode island			
45 South Carolina	X	X	X
46 South Dakota			X
47 Tennessee			X
48 Texas	X	X	X
49 Utah			
50 Vermont			
51 Virginia	X	X	X
53 Washington			
54 West Virginia			
55 Wisconsin	X	X	
56 Wyoming.			

**Appendix Table 2. Description of variables for naturalization analysis**

<b>Variable</b>	<b>Measurement</b>
<b>Dependent Variable</b>	
Citizenship	Non-citizen (ref), compared to citizen
<b>Individual characteristics</b>	
Age	Age 55+ (ref), compared to: 5-15, 16-24, 25-40, 41-55
Sex	Male (ref), compared to female
Years in U.S.	0-5 years (ref), compared to 6-10, 11-15, 16-20, 21+
English competence	Does not speak English (ref), compared to speaks not well, speaks well, speaks very well, speaks only English
Household income	Less than \$15,000 (ref), compared to \$15,000-39,999, \$40,000-74,999, \$75,000-99,999, \$100,000 and more
Education	More than BA age 25+ (ref), compared to other categories age 25+: Less than high school, High school grad, Some college, BA or associate
Age at immigration	Years
Number of children	Number of children in the household
Marital status	Not Married (ref), compared to Married
Homeownership	Renter (ref), compared to owner
Occupation	Other occupations (ref), compared to unemployed, occupations with zero probability of being illegal immigrants, occupations with high probability of being illegal immigrants
<b>Collective characteristics</b>	
Isolation index	Group-weighted average percent of the group proportion in a PUMA
Percentage voting age immigrants	Percentage of naturalized and age 18 + persons out of total foreign-born population
Income ratio	Ratio of group median household income to non-Hispanic white median household income
Repressive country	Free (ref), compared to partly free, not free
Dual citizenship	No dual citizenship (ref), compared to dual citizenship allowed
Immigrant receptivity	Index of public attitudes aggregated to states (standardized score)
Immigrant eligibility	Index of availability of state welfare support to immigrants treated as a dichotomy, less restrictive (ref) compared to more restrictive
Latino office holding	Number of Latino office holders in PUMA, none (ref) compared to at least one
Absentee vote policy	Absentee vote restricted (ref), compared to liberalized absentee vote policy
Early vote policy	No early vote (ref), compared to early voting allowed
Voter ID policy	No voter ID requirement (ref), compared to voter ID required

**Appendix Table 3. Description of variables for registration and voting analysis**

Variable	Measurement
<b>Dependent variables</b>	
Voting	Did not vote (ref) compared to voted
Registration	Not-registered (ref) compared to registered
<b>Individual characteristics</b>	
Generation	1st generation (ref) compared to 2nd generation (one or both parents are foreign born) and 3+ generation (native born of native parents)
Age	Age 55+ (ref) compared to ages 18-24, 25-40, and 41-55
Educational Attainment (only for those over 25 years of age)	More than bachelor's (i.e. graduate or professional degree, ref) compared to less than H.S., High school, and Bachelor's degree
Total Family Income	Less than \$14,999 (ref) compared to \$15,000-39,999, \$40,000-74,999, and \$75,000 +, and "don't know"
Home Ownership	Tenant/renter (ref) compared to homeowner
Spanish Only Household**	Some members of household speak language other than Spanish (ref) compared to all HH members speak only Spanish
Gender	Female (ref) compared to male
Marital Status	Not married (including never married, divorced, widowed, ref) compared to married (spouse present or absent—includes married but separated)
Number of Children in Household	total children<=18 in HH
Residential mobility	< 1 yr at address (ref) compared to 1-2 yrs, 3-4 yrs, 5+yrs, and "don't know"
<b>Collective characteristics</b>	
Isolation index of racial group in MSA	Isolation index* (0-100): "The average member of racial group lives in a tract that is <i>i</i> % of the same racial group"
Ratio median income of racial group in MSA relative to all whites	Ratio of group's median HH income to whites*
Metropolitan status	Metro (ref) compared to not metro or not identified
Immigrant receptivity	Index of public attitudes aggregated to states (standardized score)
Immigrant eligibility	Index of availability of state welfare support to immigrants treated as a dichotomy, less restrictive (ref) compared to more restrictive
Voter Identification	No voter id policy required (ref) compared to voter id policy required
Bilingual Ballot Provisions in state	No bilingual ballot (ref) compared to bilingual ballot—partial state coverage and bilingual ballot—statewide coverage
Absentee voting policy in state	No absentee voting (ref) compared to provisions for absentee voting
Registration policy in state	No early voting (ref) compared to early voting allowed

\*These variables are race-specific.

\*\*Only included in analysis of Hispanics.