Polling place hours and voter turnout

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Polling place hours on Election Day vary considerably within and between states. Does variation in poll operating hours affect voter turnout? This study utilizes a regression discontinuity design and examines separate Minnesota and Montana statutes enabling jurisdictions with fewer than 500 (or 400) residents to delay opening their polls by three (or five) hours on Election Day. Since areas slightly above the population cut-off are indistinguishable from areas just below the threshold, the research design produces a credible estimate of the causal impact of reducing polling place hours of operation on voter turnout. In the first systematic study on the topic, I find that a large reduction in polling place hours exerts no influence on voter turnout in 2008 or 2010 in Minnesota but that reductions in polling place hours from 2008-2012 reduce voter turnout in Montana. Cross-sectional and time series data from Vermont suggests that polling place hours changes have a limited impact on voter turnout.

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Election Day polling place hours for presidential and midterm contests vary considerably within and between states. For statewide general elections, polls are open as long as 14 hours (e.g., Iowa) and as short as seven hours (e.g., rural Montana), and more than a dozen states have intrastate variation in poll operating hours.[2] The foregoing study employs a regression discontinuity design, along with time series precinct-level election returns, to test whether variation in polling place hours on Election Day reduces voter turnout.

This project harnesses three separate sources of data. First, it examines the impact of a Minnesota statute authorizing areas with fewer than 500 residents to reduce polling place hours by up to 25% on Election Day. Since areas with slightly more than 500 residents are indistinguishable from areas just below the election law population threshold, any difference in voter turnout is likely attributable to the statute. The second source of data is a similar statute in Montana that enables jurisdictions with fewer than 400 registered voters to reduce poll operating hours by five hours in 2008, 2010 and 2012. Third, I utilize time-series, cross-sectional data from 2004 to 2012 in Vermont to test the impact of polling place hours changes over time and across precincts.

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[2]Intrastate variation is concentrated in Northeast states such as Maine, New Hampshire and Vermont. In Vermont, for instance, polls across the state stay open between nine and 13 hours. Neighboring states also exhibit strikingly different patterns. Polls stay open 14 hours in Iowa but only 13 in adjacent Illinois, Missouri, Wisconsin, 12 in Nebraska, and 10 in parts of Minnesota. More than one dozen states have variation across polling place locations during general elections.

In Minnesota, I find that voter turnout is no different in areas with expansive hours vis a vis those with limited operating hours. These findings likely do not result from low statistical power – the precinct level dataset contains 4,100 observations, variation in voter turnout rates is relatively low and the hypothesized treatment effects are considerable. Time series, cross-sectional data from Vermont corroborates findings from the regression discontinuity design.

In Montana, by contrast, reductions in polling place hours exert a negative and statistically significant impact on voter turnout over six separate statewide elections. The magnitude of the effect is between two and four percentage points.

The mixed results stand in contrast to conventional wisdom and have important implications for party mobilization efforts, political debates over polling place accessibility, local budgets and public policy. This paper is organized in the following manner. First, I discuss the literature and hypotheses. Next, I describe and test the impact of the Minnesota statute. Third, I describe and test the impact of the Montana polling place hours statute. Fourth, I examine time series, cross-sectional data from Vermont. The final section concludes.

The Impact of Polling Place Hours Reductions

Polling place hours of operation vary tremendously within and between states; yet, no scholars to date have examined how the length of time a polling place is open on Election Day might affect voter turnout. Reductions in poll operating hours should decrease voter turnout because the political participation literature has shown modest changes in election administration laws affect voter turnout, many residents only can vote during limited time periods, and in-person, Election Day voting remains the most common method of voting.

The utility an individual receives from voting is a function of the overall costs and benefits associated with casting a ballot [Riker and Ordeshook, 1968]. Research indicates election administration laws that make the voting process less costly, such as the National Voter Registration Act (e.g., Motor Voter), Election Day Registration laws, eliminating residency requirements and early / absentee balloting expansions have increased voter turnout [Ansolabehere and Konisky, 2006, Burden and Neiheisel, 2011, Gronke et al., 2007, Knack, 1995, Rosenstone and Wolfinger, 1978, Wolfinger et al., 1990]. On the other hand, policies or events that inconvenience voters, such as precinct consolidation, increasing the physical distance residents travel to the polls, moving polling places, strengthening Voter Identification statutes and inclement weather can demobilize voters [Brady and McNulty, 2011, Gomez et al.,

2007, Haspel and Knotts, 2005, McNulty et al., 2009]. I argue that eliminating morning or evening hours similarly inconveniences voters.

Second, and related, poll operating hours can influence turnout because many voters have busy and constrained schedules. Non-voters cite conflicting work or family schedules as their top reason for staying home on Election Day,[3] and one in six Americans can vote during the morning hours but at no other time throughout the day.[4] These conflicts are more likely to occur in precincts with limited polling place hours. In precincts with extended hours of operation, residents can vote before or after work; by contrast, voters residing in jurisdictions with more limited hours must cast their ballots during standard work hours.

Third, reductions in polling place hours disproportionately affect Election Day voters,

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[3]Twenty-six percent of non-voters in the November 2010 Current Population Survey selected "too busy, conflict work or school schedule" as their top reason for not voting.

[4]1,355 individuals were asked to check boxes next to all of the hourly time periods between 7:00 a.m. to 8:00 p.m. in which they could vote. Sixteen percent of respondents could vote prior to 10:00 a.m. but not any time thereafter. The survey was administered on Amazon Mechanical Turk. We might expect the actual proportion of individuals with constrained schedules in the evening to be lower because the Amazon Mechanical Turk sample is younger and more likely to be single than a nationally representative sample.

The Minnesota statute under inquiry (see below for details) reduces polling hours in the morning, one of the busiest times to vote. Between one-quarter and one-third of voters say they cast their ballots between 7:00 a.m. and 10:00 a.m., according to surveys and exit polls. While there is limited contemporary data on the subject, Busch and Lieske [1985] find that 15.1 percent voted 6:30 a.m. to 9:00 a.m., 17.8 percent voted 9:00 a.m. to 11:30 a.m., 25.4 percent voted 11:30 a.m. to 2:00 p.m., 18.1 percent voted 2:00 p.m. to 4:30 p.m. and 23.6 percent voted 4:30 p.m. to 7:00 p.m. in a 1981 Cleveland exit poll [Busch and Lieske, 1985]. Forty-five percent of respondents to the 1992 Current Population Survey, said they cast their ballot before noon on Election Day. Also see [Fuchs and Becker, 1968] and the 1972 Current Population Survey for studies of the proportion of voters who cast ballots across time periods on Election Day.

and in-person, Election Day voting remains the predominate voting method. Seventy-five percent of voters cast their ballots on Election Day in 2010[5] and 2012, despite recent gains for absentee or early voting. In states such as Minnesota, approximately 95% of voters cast their ballots in person on Election Day.[6]

These factors cumulatively lead to the following prediction:

H1: Reductions in Polling Place Hours will decrease voter turnout

Beyond the average effect of this policy, scholars have argued that the effect of election laws vary across individuals. Voter subgroups with constrained work and family schedules should be more sensitive to variation in polling place hours. Whereas retirees, students, homemakers and others with flexible schedules may be unaffected by modifications to polling place hours, blue collar workers and individuals with less flexible daily routines may be inconvenienced by these changes.[7]

H2: Reductions in Polling Place Hours will diminish turnout only among

voters with inflexible work and family schedules.

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[5]24.9 percent of voters cast their ballots early, either in person or by mail, according to the 2010 Current Population Survey `http://pewhispanic.org/files/reports/141.pdf`

[6]As of 2010, Minnesota residents must have an excuse to cast an absentee by ballot by mail. This policy significantly depresses absentee voting rates. In 2010, for example, absentee ballots represented only 6% of all ballots cast `http://www.sos.state.mn.us/index.aspx?page=1570`

[7]Employed persons and professionals generally cast their ballots in the early morning and late afternoon, while retirees, students, homemakers vote throughout the day [Fuchs and Becker, 1968, Busch and Lieske, 1985]. The Minnesota statute described below specifically reduces morning polling hours.

The next section takes these predictions to the data.

Study 1: Regression Discontinuity in Minnesota

Description. Minnesota statutes allow certain precincts to reduce their polling place hours by up to 25% on Election Day – this section describes the statute, outlines a regression discontinuity design and presents key empirical findings.

Election law[8] specifies poll operating hours for statewide elections as 7:00 a.m. to 8:00 p.m.[9] Suburban and rural municipalities with fewer than 500 inhabitants, however, are exempt from the strict hours requirement and can open their polling locations as late as 10:00 a.m.[10] Interviews with county auditors and township officials indicate that they reduce hours because their municipalities lack full-time employees who can serve as polling place officials.[11]

Data. Precinct level voter turnout, votes for Governor and absentee balloting data

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[8]The statute was modified previously in 1981, 1983 and 1985. The key provisions of the law have been in effect since the 1980s. See the appendix for full details and legislative history.

[9]"Except as otherwise provided...hours for voting in every precinct in the state shall begin at 7:00 a.m. and shall extend continuously until 8:00 p.m." - Section 204C.05, Subdivision 1

[10]"The governing body of a town with less than 500 inhabitants according to the most recent federal decennial census, which is located outside the metropolitan area as defined in section 200.02, subdivision 24, may fix a later time for voting to begin at state primary, special, or general elections, if approved by a vote of the town electors at the annual town meeting. The later time may not be later than 10:00 a.m. for special, primary, or general elections." - Subd. 1a. Elections; organized town. The Twin Cities Metro Area is referenced in Section 200.02, subdivision 24

[11]The later opening time also must be approved at a town meeting, an annual gathering where residents review year-end financial reports, discuss the budget and review various maintenance projects.

were obtained from the Minnesota Secretary of State's office and matched to Census data.[12] Polling place opening and closing times for the 2010 midterm election were obtained from county auditors.[13]

Descriptive Statistics. Table 1 displays the polling place hours for Minnesota's 4,100 precincts broken down by population and metropolitan status. More than 1,800 precincts were eligible to limit their polling place hours because they were located outside of the Twin Cities Metropolitan area and had fewer than 500 residents. Overall, nearly 600 precincts reduced their hours in November 2010.[14]

The left panel in Figure 2 displays the counties that were eligible to reduce their

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[12]This supplemented the datasets with extensive voting district or block group level demographic information including racial composition, hispanic background, median age, housing unit tenure, rental status, urban vs. rural, marital status, employment status, work commute, educational attainment, college enrollment, citizenship, industry type, occupation type, median household income and poverty rate. The precinct's 2000 Census population was used to note whether it was eligible to reduce hours and serves as an instrument in the two stage least squares models (described in the next section).

[13]The Secretary of State's office does not maintain a statewide database of polling place hours of operation. Nearly all County auditors provided spreadsheets with this information.

[14]The top half of Table 1 demonstrates that nearly all jurisdictions complied with the election statute: only 12 areas with populations above 500 reduced hours while more than 500 with populations under the threshold reduced their hours. The bottom half shows that there are hundreds of precincts on each side of the 500 person threshold. Precincts with fewer than 250 inhabitants were most likely to reduce their hours or conduct their elections by mail-in ballots. More than 500 of the state's tiniest precincts conduct their elections solely by mail-in balloting. Residents in such areas are mailed ballots approximately 20 days before an election. The governing board of any municipality with fewer than 400 registered voters as of June 1 of the current election year may apply to the county auditor for permission to conduct balloting by mail `https://www.revisor.leg.state.mn.us/statutes/?id=204B.45&year=2011` "A municipality having fewer than 400 registered voters on June 1 of an election year and not located in a metropolitan county as defined by section 473.121 may provide balloting by mail at any municipal, county, or state election with no polling place other than the office of the auditor or clerk or other locations designated by the auditor or clerk. The governing body may apply to the county auditor for permission to conduct balloting by mail. "

polling hours and the right panel shows the precincts that reduced their hours.[15]

Figure 3 indicates that smaller precincts are significantly more likely to reduce their poll operating hours. Each precinct is represented by a black dot, and separate smoothed lines have been created for precincts above and below the 500 person population threshold. Approximately half of the smallest precincts limit polling place hours of operation and one in four precincts with between 400 and 500 persons limits hours. By contrast, only a handful of larger precincts reduce hours and no jurisdictions with more than 650 residents limit polling place hours. The smoothed lines also indicate that there is a clear step function at the 500 person discontinuity specified by the statute – precincts slightly below the threshold are twice as likely to reduce their hours than precincts slightly above the threshold.[16]

Table 2 demonstrates that precincts on both sides of the 500 person population threshold are nearly identical across demographic variables such as age, race, educational attainment, political views and median income.[17]

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[15]Areas shaded red maintained full polling place hours in 2010, yellow areas reduced hours, and white areas conducted mail-in elections. In many suburban and rural counties, small cities maintained full hours while the outlying areas reduced hours. This trend is most apparent in southwest Minnesota.

[16]The plot demonstrates that the instrument, the 500 person threshold, satisfies the inclusion restriction because it is correlated with the endogenous explanatory variable at conventional levels of significance. The McFadden's Pseudo R-squared for a regression of an indicator for reducing hours on population is .18 and the coefficient is significant.

[17]For instance, residents in voting districts above and below the cutoff by 150 persons typically are white, middle class, and married. Table 2 provides separate balance statistics for precincts within 150 persons of the threshold on either side and those within 250 persons of the threshold.

In summary, there are hundreds of voting districts on both sides of the 500 person threshold identified in the election statute, areas on both sides are similar across a series of important demographic characteristics, and the threshold predicts precinct polling hours of operations.

Research Design. Observational studies of poll operating hours have weak identification strategies because expectations of voter turnout can affect decisions to extend or reduce polling place hours.[18] This study identifies the impact of polling hours with a regression discontinuity design. Precincts with slightly more than 500 persons versus those with slightly fewer than 500 are identical except for their polling place hours of operation. Therefore, differences in turnout between the two precincts should be attributable to the Election administration policy.

In a regression discontinuity design, the probability of receiving treatment varies discontinuously as a function of an underlying variable [Hahn et al., 2001]. The first stage equation regresses polling place hours, the endogenous explanatory variable, on the 500-person population threshold (the instrument) and the second stage regresses 2010 turnout on predictions from the first stage.

Results. Table 3 displays results for three instrumental variables models. Models 1

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[18]A regression of voter turnout on polling place hours among all precincts yields an unintuitive negative coefficient on polling place hours. This is because more diverse urban districts have longer polling places. This finding highlights the limitations of purely observational studies that mistakenly treat the independent variable as exogeneous.

- 3 compare precincts with 500 to 750 persons to those with 250-499 persons. The continuous explanatory variable *Hours*, which ranges from 10 to 13, does not predict 2010 voter turnout in any of the models. Control variables including age, marital status, educational attainment and median income are in the expected directions. Models 4-6 compare precincts with 500 to 650 persons to those with 350-499 residents and yield similar results. Across the models, the decision to reduce polling place hours does not affect turnout. Table 4 reports nearly identical null results for models that used a first stage logistic regression (rather than OLS).[19]

Precincts also were matched using genetic matching across the 500 resident threshold on age, race, educational attainment and median household income. There was no difference in turnout across the threshold. Given the high level of balance displayed in Table 2, it is not surprising that these estimates are nearly identical to the instrumental variables estimates in Tables 3 and 4.

Finally, Table 5 reproduces the analysis for polling place hours and voter turnout in 2008. These null findings mimic the results from Tables 3 and 4 and suggest that polling place hours of operation are not influential in either midterm or presidential election contests in Minnesota.

Overall, differences in polling place hours across precincts exert little effect on voter

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[19]Precincts that reduce hours are coded as 1 while those that maintain full hours are coded as 0.

turnout, despite the large sample size and relatively low variation in turnout across voter precincts.

Study 2: Polling Place Hours in Montana

Description. Polling places must be open from 7:00 a.m. to 8:00 p.m. for statewide primary and general elections, according to Montana Election Code.[20] However, the statute was modified in 2007 to allow municipalities with fewer than 400 registered electors to open as late as noon, a five hour delay.[21] I examine voter turnout among jurisdictions slightly above and below the population cut-off both before and after the statute change and find that poll hours of operation have a small but statistically significant impact on voter turnout.

Data. Precinct level voter turnout and registered voters data from 2006 - 2012 were obtained from the Montana Secretary of State's Web site and matched with Census data.[22]

Findings. This section compares voter turnout among precincts slightly above the 400 voter threshold to turnout in precincts slightly below the threshold across a

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[20]http://data.opi.mt.gov/bills/mca/13/1/13-1-106.htm

[21]This statute took effect in 2007, according to Shannon Stevens at the Office of Montana Secretary of State.

[22]The precinct data includes the following elections: 2006 primary, 2006 general, 2008 primary, 2008 general, 2010 primary, 2010 general, 2012 primary and 2012 general.

number of elections. Precincts above the cut-off stayed open 13 hours on Election Day, whereas precincts slightly below the cut-off were able to reduce their operating hours by five hours, or more than 33%.[23] The analysis suggests that reductions in polling place hours exert a negative and statistically significant impact on voter turnout over the three election cycles. Yet, the magnitude of the turnout effect is modest and the results are not the same across all elections.

Over three statewide general elections (2008, 2010 and 2012), 71 percent of registered voters cast ballots in precincts with full hours, compared with 69 percent of registered voters in precincts with limited hours. Precincts in the first group had 400 to 500 registered voters, whereas the latter had 300 to 400 registered electors. The difference in means is significant at the p <.06 level in a two-tailed t-test.[24]

The voter turnout difference is significant in two out of the three individual general elections as well, as shown in Table 6. In November 2008, 78 percent of registered voters in municipalities directly above the cut-off cast ballots compared with 75 percent of voters living in areas slightly smaller than the threshold (p <.05). In November 2010, 62 percent of registered voters in municipalities directly above the cut line cast ballots compared with 58 percent of voters living in areas slightly smaller

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[23]More than 50 precincts under the 400 voter threshold opened at noon in November 2012. There are approximately 250 precincts with between 0 and 400 registered voters.

[24]I selected a 100 person band for the regression discontinuity design models. The results are highly similar when using bands such as 75 persons or 125 persons.

than the threshold (p <.09). In November 2012, areas above and below the threshold cast ballots at approximately the same rate.

In three statewide primary elections from 2008 to 2012, 44 percent of registered voters cast ballots in precincts slightly above the population threshold, compared with 41 percent of registered voters in precincts with limited hours over the three statewide primary elections. The difference in means is significant at p <.09 in a two-tailed t-test.

In 2010, 40 percent of registered electors cast ballots in statewide primaries in precincts immediately above the 400 elector threshold, compared with 36 percent of electors in precincts below the 400 person threshold. The difference is significant at the p <.09 level. In 2008 and 2012, the differences between the smaller and larger precincts are not individually statistically significant.

The statute granting smaller precincts the ability to reduce their poll operating hours took effect in 2007. Before the election statute took effect, there should be no turnout difference across precincts slightly above and below the population threshold. I conduct this placebo test utilizing data from the 2006 statewide primary and general election. The results appear in the third section of Table 6. This results indicate that there were no differences in voter turnout across the two categories of precincts. Sixty-eight percent of registered electors in precincts with between 400 and 500 elec-

tors cast ballots in November 2006, compared to 68 percent of registered electors in precincts with between 300 and 400 registered electors. Similarly, 40 percent of registered voters in precincts above the cut-off cast ballots in the 2006 primary elections, compared with 41 percent in precincts slightly below the threshold. Neither difference is statistically significant. Voter turnout across both statewide primary and general elections is 54 percent in both sets of precincts.

Overall, the results (displayed in Figure 4) suggest that poll operating hours can have a small impact on voter turnout. Turnout is at least 2.5 percentage points higher in precincts with full hours compared with similar precincts that reduced hours for four out of six statewide elections after 2007. These jurisdictions are highly similar and there were no differences in turnout across the population threshold before the law took effect.

Study 3: Polling Place Hours in Vermont

Description. Polls are open between nine and 13 hours on Election Day in Vermont, and precincts regularly change their operating hours across election cycles.[25]

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[25]Vermont polling places are open between nine and 13 hours on Election Day. Polling places must close at 7 p.m., but opening times range from 6 a.m. to 10 a.m. According to Kathleen Scheele, Vermont's Director or Elections and Campaign Finance, local "BCAs [Boards of Civil Authority] have had the power to set the opening hours for over 30 years. There is always variation in Vermont primarily based upon the number of voters in the town." Nearly all townships larger than 4,000 residents have polling places that stay open 12 or 13 hours, while a majority of municipalities under

This section examines whether polling places with longer hours exhibit higher levels of turnout on Election Day using time-series, cross-sectional data from the state. I find that variation in polling place hours does not affect political participation.

Data. Township level polling place hours and election returns from 2004 through 2012 were obtained from the Vermont Elections Division and then merged with Census data.

Findings. Polls open between 5:30 a.m. and 10: 00 a.m. across the state. Table 7 regresses voter turnout on poll opening time, which is treated as a continuous variable. The first model yields a significant relationship between polling place hours and voter turnout. Models 2 and 3 add control variables and find no relationship between poll hours and voter turnout. Models 4-6 run the same models for turnout among registered voters and obtain similar null findings. All models contain year fixed effects.

Many individual precincts change their hours between 2004 and 2012. Table 8 examines poll operating hour differences across precincts and within precincts over time. The variable *Opening Time Difference* equals 0 if the polling place opened at the same time across two election cycles, is positive if the polling place opened later in the second comparison year, and is negative if the polling place opened earlier in the

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1,000 residents have a limited, nine hour voting period.

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second year. Models 1-4 regress the change in turnout for elections two years apart (e.g., 2004 to 2006; 2006 to 2008; 2008 to 2010) on the opening time difference and poll opening time, while Models 5-8 examine change only across midterm contests (e.g., 2006 to 2010) or presidential elections (e.g., 2004 to 2008). The full models with demographic control variables suggest that poll opening times and changes in poll opening times exert little to no influence on voter turnout across the state.

Conclusion

Does variation in polling place hours affect voter turnout? This study yields mixed results on this research question. Reductions in polling place hours should reduce turnout because nearly all voters cast their ballots in person on Election Day in Minnesota and exit polls and other studies show that a significant proportion of voters cast their ballots in morning hours affected by poll operating hours reductions. The findings indicate that voter turnout is no different in areas with expansive hours vis-a-vis areas with limited operating hours in Minnesota or in Vermont but that poll operating hours influence turnout in Montana.

Before closing, I will briefly describe some unique aspects of the data that may affect the results. Changes in poll operating hours likely affect various voter subgroups

differently. The preceding analyses examine rural and Northeastern states and some may question whether the results are generalizable to more diverse, urban areas. The focus on rural areas presents a difficult case for finding treatment effects because residents in these areas, on average, vote at higher levels than residents of large urban areas. Minnesotans, for example, exhibit among the highest levels of voter turnout in the country. Nevertheless, future studies should examine intrastate variation in poll operating hours within urban areas.

The negative and significant finding in Montana is impressive for a number of reasons. First, many voters are well informed of these polling place hours changes. The county auditor and local officials in Montana and Minnesota must provide notice of polling place hours and other election information prior to each election. Moreover, research suggests voting is habitual, and if these hours have been in place for multiple election cycles, voters may adjust their schedules accordingly.

Second, while the hours reductions in Montana were significant, the disruption may not have been a strong enough treatment. In Montana, as in Vermont and Minnesota, morning voters could return in the afternoon or early evening to cast a ballot. Future studies can test whether closing a poll early exerts a larger impact on turnout than opening a poll late.

Third, this project examines returns from statewide general and primary elections.

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Changes in polling place hours may have a more profound effect outside of general election contests because voters are less informed and engaged during special and off-cycle elections for offices such as school board or city council. Therefore, the results obtained from this study may represent a lower bound for poll operating hours treatment effects.

Finally, there are a number of reasons why it is plausible to obtain null findings in Minnesota but significant findings in Montana. First, Montana is a much larger state than Minnesota, and voters must travel considerable distances to reach the polls. Second, poll hours were reduced by a full five hours in Montana, compared with three hours in Minnesota. Third, Minnesota voters cast ballots at a very high level, and there may have been a ceiling effect on their voter turnout.

Overall, the results suggest that election administration policies can influence voter turnout on Election Day, though the evidence is far from dispositive.

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Figure 1: Population in Minnesota (by precinct)
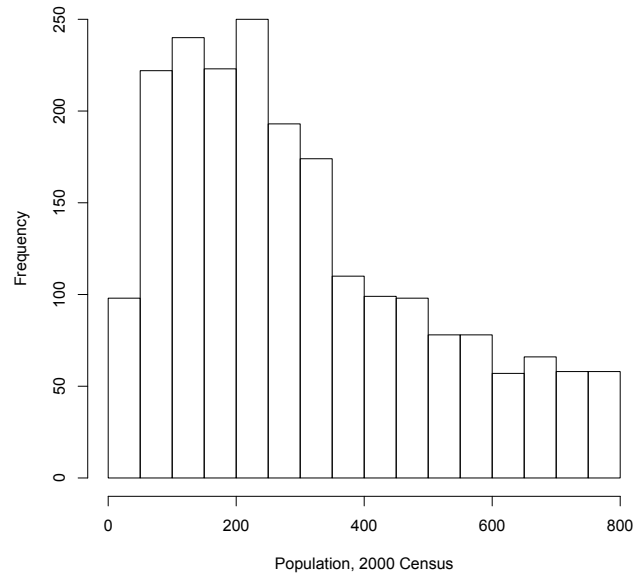
Figure 2: Left Panel: Precincts eligible to reduce polling place hours. Right panel: Polling Place Hours in 2010 - full (red), reduced (yellow), mail-only (white)
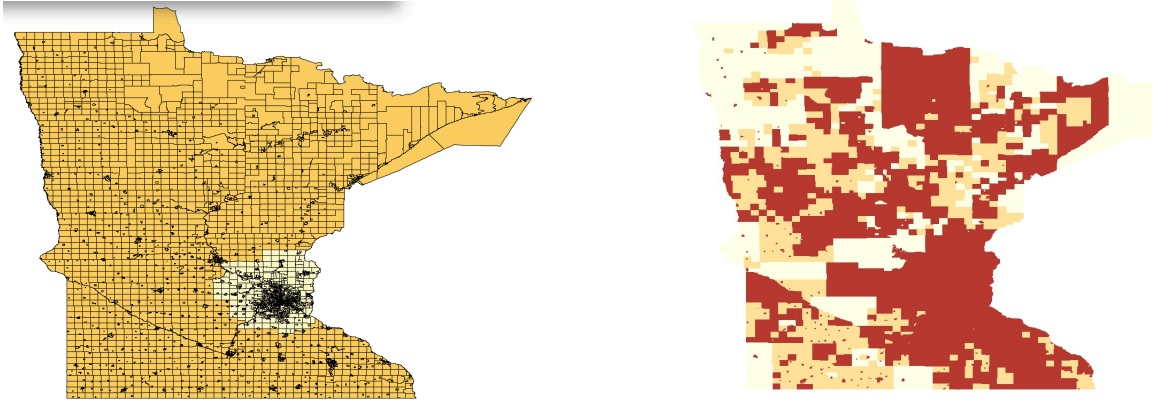
Table 1: Precinct Polling Place Hours (by 2000 Population)

	Full	Reduced	Mail-in	Total
Non-Metropolitan				
Under 250 people	363	346	283	1015
250-349	147	159	32	370
350-499	214	73	15	306
500-650	200	11	3	215
651-750	123	0	1	124
751-1000	213	1	2	216
Metropolitan				
	1153	0	0	1153

Figure 3: Probability of reducing hours as a function of 2000 Population
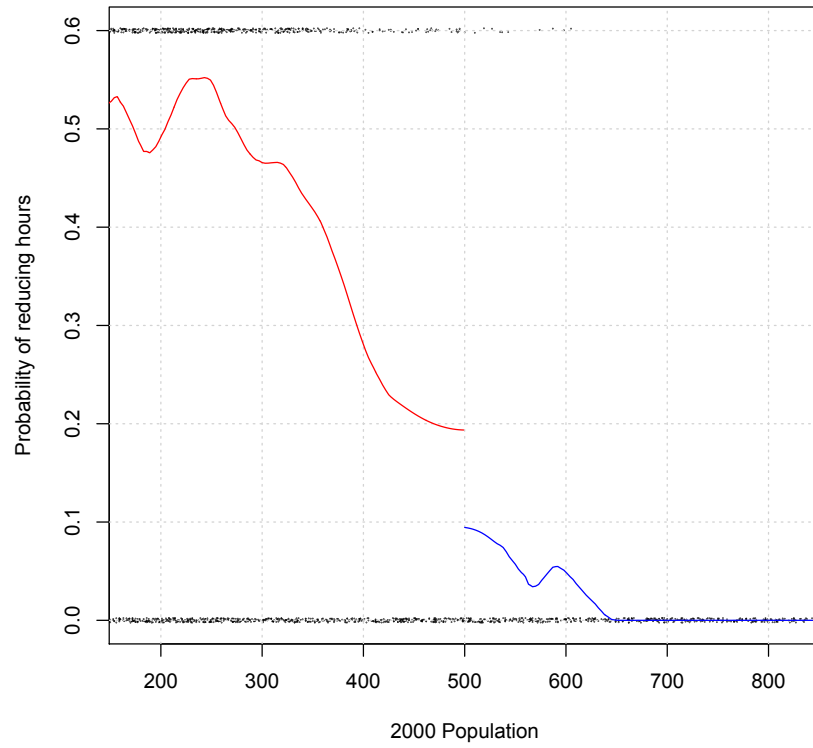
Table 2: Balance Summary Across Population Thresholds in Minnesota

	Precinct Population			
	250-499	500-750	350-499	500-650
% Democratic Vote - Gov 2010	.39	.39	.39	.39
% White	.98	.98	.98	.97
% Married	.63	.64	.64	.64
% Never Married	.23	.22	.23	.23
% Urban	.11	.08	.12	.09
% Renter	.15	.15	16	.15
% Poverty	.08	.08	.09	.09
% Age 18-29	.12	.12	.13	.12
% Age 65+	.16	.17	.17	.18
% Citizens	.99	1.00	.99	.99
Median HH Income (000s)	41.8	42.1	41.9	41.2
Number of Cases	555	323	279	205

Table 3: Instrumental Variables estimate of Polling Place Hours on 2010 Voter Turnout in Minnesota. The first stage was estimated with a linear regression

	+/- 250 residents			+/- 150 residents		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Polling Hours	-0.0099	0.0010	-0.0009	-0.0162	0.0025	-0.0021
(e.g., 10-13)	(0.0058)	(0.0038)	(0.0039)	(0.0128)	(0.0082)	(0.0079)
N	945	945	945	497	497	497
adj. R^2	0.1660	0.6022	0.6317	0.1740	0.6563	0.6849
Resid. sd	0.0827	0.0571	0.0549	0.0853	0.0550	0.0527
Previous Turnout	N	Y	Y	N	Y	Y
Demographics	Y	N	Y	Y	N	Y

Standard errors in parentheses

$*$ indicates significance at $p < 0.05$

Table 4: Instrumental Variables estimate of Polling Place Hours on 2010 Voter Turnout in Minnesota. The first stage was estimated with a logistic regression.

	+/- 250 residents			+/- 150 residents		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Reduced Hours	-0.0099	-0.0054	-0.0009	0.0255	-0.0061	-0.0018
	(0.0058)	(0.0112)	(0.0039)	(0.0353)	(0.0239)	(0.0218)
N	945	945	945	497	497	497
adj. R^2	0.1660	0.6022	0.6317	0.1721	0.6563	0.6849
Resid. sd	0.0827	0.0571	0.0549	0.0854	0.0550	0.0527
Previous Turnout	N	Y	Y	N	Y	Y
Demographics	Y	N	Y	Y	N	Y

Standard errors in parentheses

* indicates significance at $p < 0.05$

Table 5: IV estimate of Polling Place Hours on 2008 Voter Turnout.

	+/- 250 residents			+/- 150 residents		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Polling Hours	-0.0123 *	-0.0003	-0.0002	-0.0179	-0.0066	-0.0077
(e.g., 10-13)	(0.0060)	(0.0041)	(0.0043)	(0.0128)	(0.0090)	(0.0090)
N	945	945	945	497	497	497
adj. R^2	0.1015	0.5492	0.5614	0.1053	0.5535	0.5618
Resid. sd	0.0851	0.0603	0.0595	0.0856	0.0605	0.0599
Previous Turnout	N	Y	Y	N	Y	Y
Demographics	Y	N	Y	Y	N	Y

Standard errors in parentheses

* indicates significance at $p < 0.05$

Table 6: Voter Turnout and Poll Operating Hours, Montana. Precincts below the 400 voter threshold were able to reduce their poll operating hours by five hours on Election Day beginning in 2007.

Election	% Turnout Below / Above	# Precincts Below / Above	P-Value
2008 General	74.7 / 77.9	58 / 58	0.05
2010 General	57.9 / 62.1	57 / 61	0.08
2012 General	74.6 / 73.9	48 / 70	0.37
All General	68.8 / 71.3	163 / 189	0.07
2008 Primary	48.9 / 48.1	55 / 71	0.69
2010 Primary	36.0 / 39.9	60 / 64	0.10
2012 Primary	39.7 / 42.1	58 / 70	0.21
All Primary	41.3 / 43.5	173 / 205	0.08
2006 Primary	41.2 / 40.5	57 / 68	0.78
2006 General	67.8 / 68.3	53 / 65	0.78
All 2006	54.2 / 54.3	110 / 133	0.98

Figure 4: % Voter Turnout from 2006 to 2012 in Montana
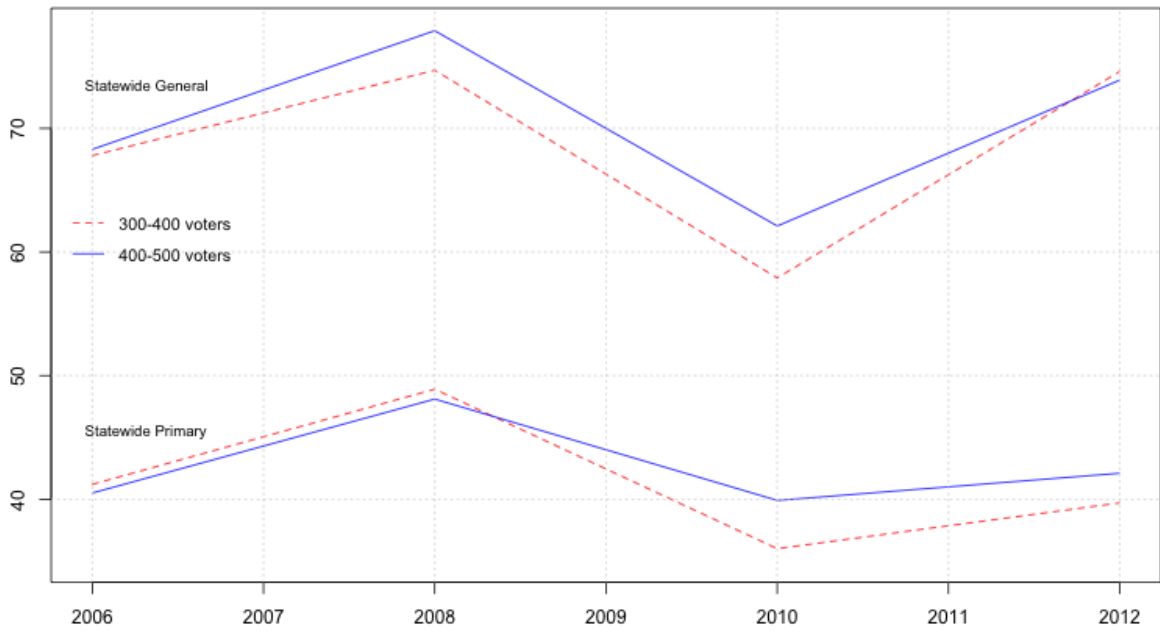
Table 7: OLS regressions of turnout on poll opening time in Vermont

	(1)	(2)	(3)	(4)	(5)	(6)
	%VAP	%VAP	%VAP	%RVs	%RVs	%RVs
Poll Opening Time	-0.006 *	-0.003	-0.001	-0.000	-0.001	0.001
(6 to 10 a.m.)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.690 *	-1.856 *	-2.478 *	0.710 *	-0.851 *	-1.326 *
	(0.022)	(0.177)	(0.199)	(0.016)	(0.171)	(0.192)
N	1064	1064	1064	1064	1064	1064
adj. R^2	0.301	0.693	0.715	0.461	0.608	0.638
Resid. sd	4.350	2.883	2.778	3.271	2.789	2.680
Year Fixed Effects	Y	Y	Y	Y	Y	Y
County Fixed Effects	N	N	Y	N	N	Y
Demographics	N	Y	Y	N	Y	Y

Standard errors in parentheses

* indicates significance at $p < 0.05$

Table 8: Difference in Turnout Models, Vermont

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	% VAP Turnout Diff - Election t vs. t-1				% VAP Turnout Diff - Election t vs. t-2			
Polling Opening Time			-0.003*	-0.002			-0.004*	-0.000
(6:00 a.m. to 10:00 a.m.)			(0.001)	(0.001)			(0.001)	(0.001)
Change in Hours	0.003	0.003	-0.002	-0.003	0.002	0.001	0.014	0.004
(Current vs. Previous election)	(0.002)	(0.002)	(0.012)	(0.012)	(0.002)	(0.002)	(0.012)	(0.012)
Polling Opening Time *			0.001	0.001			-0.001	-0.000
Opening Time Difference			(0.002)	(0.002)			(0.002)	(0.001)
Constant	-0.102 *	-0.316 *	-0.081 *	-0.254 *	0.026 *	-0.535 *	0.058 *	-0.520 *
	(0.002)	(0.111)	(0.010)	(0.116)	(0.002)	(0.123)	(0.011)	(0.130)
N	798	798	798	798	532	532	532	532
adj. R^2	0.909	0.909	0.910	0.910	0.413	0.457	0.421	0.455
Resid. sd	1.651	1.649	1.647	1.647	1.554	1.495	1.543	1.497
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* indicates significance at $p < 0.05$