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Opening Hours of Polling Stations and Voter Turnout: Evidence from a Natural Experiment*

Abstract

Voter turnout has declined in many countries, raising the question of whether electoral institutions increase voter turnout. We exploit an electoral reform in the Austrian state of Burgenland as a natural experiment to identify the causal effect of polling station opening hours on voter turnout. The results show that a 10 percent increase in opening hours increased voter turnout by some 0.5 to 0.9 percentage points. The reform also influenced party vote shares. The vote share of the conservative party decreased in the course of the reform, while the vote shares of the other three main parties increased. Conservative voters tend to have an especially strict sense of civic duty and would have participated in the election in any event. Simulations indicate that parliamentary majorities in previous elections would have changed under extended opening hours in favor of the social democratic party. The opening hours of polling stations probably play a more important role in political strategies than recognized to date.

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Keywords: Voter turnout; party vote shares; opening hours of polling stations; causal effects; natural experiment; Austria

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1. Introduction

Voter turnout has declined in many countries. In Germany and Austria, for example, voter turnout in national elections decreased from over 90 percent in the 1970s to 75 and 80 percent in 2017. A pertinent question is therefore whether electoral institutions increase voter turnout. One approach is compulsory voting (Jaitman 2013, Fowler 2013, Ferwerda 2014, Lopez De Leon and Rizzi 2014, Bechtel et al. 2016 and 2017, Gaebler et al. 2017, Hoffman et al. 2017). Easy voter registration procedures, pre-registration laws, day-of-polling registration, postal voting, prepaid postage, and increasing the number of polling stations have also been shown to increase voter turnout (Highton 1997, Besley and Case 2003, Luechinger et al. 2007, Funk 2010, Brady and McNurty 2011, Bhatti 2012, Gibson et al. 2013, Burden et al. 2014, Hodler et al. 2015, Holbein and Hillygus 2016, Schelker and Schneider 2017).¹

Another important but yet underexplored electoral factor is the opening hours of polling stations. Very little is known about how opening hours of polling stations influence voter turnout. Voter turnout may well increase when voters with heterogeneous time preferences have better opportunities and more time to go to the ballot box. In the United States, Germany, Austria, and Ireland, for instance, extending the opening hours of polling stations is discussed in the public discourse.² Descriptive evidence portraying correlations between the opening hours of polling stations and voter turnout for national elections is, however, mixed. Figure 1 shows that the opening hours of polling stations and voter turnout

¹ Many other studies examine determinants of voter turnout. Geys (2006) and Cancela and Geys (2016) review studies that use voter turnout at the aggregate level (district, municipality, country) as a dependent variable. Geys (2006) concludes that population size and electoral closeness are significant explanatory variables: “turnout is higher when the population is smaller and the election closer” (p. 653); and: “the institutional procedures governing the course of the elections strongly affect turnout. Compulsory voting, easier registration procedures, concurrent elections and the use of proportional representation all significantly stimulate turnout” (p. 653). Institutions, however, are often endogenous.

² US: The Times-Picayune, 29.05.2012, http://www.nola.com/politics/index.ssf/2012/05/post_469.html; Germany: EurActiv, 19.09.2014, <http://www.euractiv.com/section/justice-home-affairs/news/spd-mulls-super-market-voting-booths-to-boost-election-turnout/>; Austria: VOL, 22.01.2015, <http://www.vol.at/laengere-wahlzeit-soll-beteiligung-heben/vol-news-traffl-20041111-093017>; Ireland: Houses of the Oireachtas, 04.07.2014, <http://oireachtasdebates.oireachtas.ie/debates%20authoring/debateswebpack.nsf/takes/dail2014070400021?opendocument>.

in national elections for OECD countries were hardly correlated over the period 2002–2015 (the correlation coefficient is $r = -0.04$). Excluding the outliers Italy (IT) and Switzerland (CH) gives rise to a somewhat *negative* correlation (the correlation coefficient is $r = -0.36$).

[Figure 1 about here]

A negative correlation of voter turnout and opening hours would undermine the concept of increasing voter turnout by extending the opening hours of polling stations. In 2002, the Republic of Ireland had the lowest voter turnout in history (62.7 percent), despite the fact that polling station opening hours were extended. Using data on the opening hours of polling stations and voter turnout in general elections across industrialized countries, however, is not suitable for deriving causal effects. Regressions of voter turnout on opening hours are very likely to be prone to reverse causality: when voter turnout is low, politicians are keen to extend opening hours to increase voter turnout. For example, the studies of Wolfinger and Rosenstone (1980) and Dropp (2012) may thus indicate a positive correlation between opening hours and voter turnout in the United States, but must be seen against the background of endogeneity and self-selection issues. The study by Garmann (2017) goes beyond the previous cross-sectional analyses and exploits time variation in polling station opening hours in local elections across German state borders. There are, however, issues with simultaneous state policy changes that make it difficult to disentangle the effects of opening hours.

We exploit a natural experiment in the Austrian state of Burgenland to identify the causal effect of opening hours on voter turnout. Traditionally, the opening hours of polling stations differ substantially across Austrian municipalities – even in national and state elections. Local opening hours depend on local preferences and customs. In 2015, an election reform gave rise to exogenous variation in opening hours. The reform compelled municipalities to extend their opening hours by an absolute amount of at least two hours at a

second election day. Opening hours on the regular election day, however, did not change to any large extent. Voting opportunities thus changed differently in *relative* terms with respect to municipal pre-reform differences in opening hours. In a similar vein as, for example, Finkelstein (2007), we exploit municipal differences in treatment intensity within a difference-in-differences model. Our results show that when opening hours were extended by 10 percent, voter turnout increased by around 0.5 to 0.9 percentage points, which is substantial because voter turnout was already around 80 percent before the reform. We show that other channels, like voting on the second election day, are unlikely to drive our results.

We also examine the extent to which longer opening hours influence the vote shares of individual parties. Previous studies have shown that conservative parties do not tend to benefit from electoral institutions that are intended to increase voter turnout (Fowler 2013, Ferwerda 2014, Fujiwara 2015, Bechtel and Schmid 2016, Gaebler et al. 2017, Hoffman et al. 2017). We corroborate these findings and show that the vote share of the conservative party (ÖVP) decreased significantly when opening hours were extended, while the vote shares of the social democratic party and the rightwing populist party (both parties attracting blue-collar workers), but also the Green party increased. Voters of the ÖVP tend to have a particular strict sense of civic duty and would have participated in the election in any event. We perform simulations that indicate that parliamentary majorities in previous elections would have changed with extended opening hours.

2. Theoretical background and hypotheses

Voting is costly (Downs 1957). For example, it takes time to access information on candidates and party manifestos, to register, and to figure out the location and opening hours of polling stations. Most importantly, visiting polling stations takes time. The location of polling stations has been shown to influence voter turnout: the probability of participating in elections

decreases in the distance to the next polling station (see Brady and McNurty 2011, Bhatti 2012 and Gibson et al. 2013). The costs increase even more if opening hours of polling stations do not fit voters' preferences or time opportunities. If late risers have to get up at the crack of dawn to visit a polling station, voting becomes extremely costly. 23 percent of all non-voters in Canadian federal elections 2011 stated that they were "too busy" to exercise their right to vote (Statistics Canada 2011). Longer opening hours may increase the probability of matching voters' preferences and thus reducing the costs of voting. Voters who hesitate to participate in elections in particular may take advantage of longer opening hours, which are, in turn, likely to increase voter turnout. Previous results by Wolfinger and Rosenstone (1980), Dropp (2012), and Garmann (2017) show that longer opening hours of polling stations are correlated with some higher levels of voter turnout. We expect longer opening hours of polling stations to increase voter turnout.

Extending the opening hours of polling stations increases voting opportunities in both absolute, but also in relative terms. The case of longer opening hours in absolute terms springs to mind: extending the opening hours of polling stations by, for example, four hours is likely to increase voter turnout to a larger extent than extending opening hours by one hour. However, it is also conceivable that the marginal return on additional opening hours decreases. In this case, the initial level of opening hours would also make a difference. The effects of two additional opening hours of polling stations are small when polling stations have already been open for twelve hours. Studies investigating the effect of shopping hours usually also assume some non-linearity in the costs or benefits of additional opening hours (see, for example, Wenzel 2010).³ By contrast, extending opening hours by two hours

³ Clearly, the major difference in extending opening hours of polling stations and shops is that voters have much less choice in polling stations (in some countries citizens can choose which polling stations they use) than consumers in choosing shops. Shopping hours are a strategic tool for shops to attract consumers. Studies on extending opening hours of shops therefore deal with issues of competition and regulation (e.g., Clemenz 1994, Gradus 1996, Thum and Weichenrieder 1997, Rouwendal and Rietveld 1998).

drastically increases voting opportunities in relative terms when there are only two or three pre-reform opening hours. Our main hypothesis is therefore that voter turnout increases to a larger extent in municipalities that experienced larger shocks to their opening hours in the pre-reform equilibrium.

Citizens may not benefit from longer opening hours uniformly. Voters with a strict sense of civic duty tend to participate in elections in any event and will hardly be influenced by extended opening hours because they would always cast their vote. By contrast, voters who often hesitate about participating in elections, are more likely to participate in elections when polling station opening hours are extended. It is conceivable that commuters or citizens who do shift work (nurses, policemen, firefighters etc.) sometimes do not have the opportunity to participate in elections on regular election days because they need to travel or work during the regular opening hours of polling stations. Commuters and shift-workers then need to use early voting opportunities like postal voting (when the governments offer opportunities for early voting) or do not participate in elections on regular election days. When polling stations only open early in the morning, farmers, who need to take care of their cattle early in the morning, or young adults, who partied all night and went to bed just before polling stations opened, may be less inclined to visit polling stations than other citizens.

We would like to examine the characteristics of individual voters who participate in elections because of extended opening hours. There is, however, no micro-survey data available describing which voters made use of the extended opening hours in the course of the reform examined here. We therefore rely on party vote shares to examine which party benefits from longer opening hours. Party vote shares may indicate the share of voters taking advantage of longer opening hours. From a theoretical point of view, we expect citizens with a strict sense of civic duty to benefit less from longer opening hours of polling stations than those with a lax sense of civic duty. We exploit a (not binding) referendum in 2013 to

describe which party supporters tend to have a strict sense of civic duty. Citizens were asked whether to keep or to abolish compulsory military service in Austria. Voting behavior in this referendum offers two important insights regarding civic duty. Firstly, the referendum was not binding for the government. Therefore, the incentives to vote were quite low. Voters who participate in a non-binding referendum may thus have a high level of civic duty. Secondly, advocates of a compulsory military service often argue that serving the country is some sort of patriotic or moral duty (see, for example, Poutvaara and Wagener 2007). Support for keeping compulsory military may also indicate civic duty preferences. We use exit poll data provided by SORA and ISA 2013, which disentangles the overall referendum results by party supporters. Table 1 shows that the voters of the conservative ÖVP were active in participating in the referendum and voting in favor of keeping the compulsory military service. Around 9 out of 10 voters for the ÖVP in the previous 2008 national election participated in the referendum (column (1)). In the total population, only 5 out of 10 eligible voters participated in the referendum. Voter turnout of ÖVP supporters was by far the highest among all other parties indicating that ÖVP supporters have a quite strict sense of civic duty. ÖVP supporters were also strongly in favor of the compulsory military service – compared to supporters of all other parties (column (2)). The results do not suggest differences between voters based on the conventional leftwing-rightwing scale: voters for the leftwing SPÖ and the rightwing populist FPÖ differ substantially from the moderate rightwing ÖVP. Taken together, 70% of all ÖVP voters in the 2008 national election casted a “yes” vote for compulsory military service (column (3)). By contrast, only 20% to 36% of voters of all other parties voted in favor of a compulsory military service.

[Table 1 about here]

We therefore conclude that voters of the conservative ÖVP tend to have a strict sense of civic duty. Filzmaier and Perlot (2008) report that “tradition” is still an important predictor

of votes the ÖVP. This is in line with previous studies that examine the effects of voter turnout and voting institutions on party vote shares. In Germany, the vote share of the conservative CDU was high when voter turnout was low (Arnold and Freier 2016). The empirical evidence on whether rightwing parties benefit from low voter turnout, however, is more mixed for other countries (e.g., Knack 1994, Gomez et al. 2007, Hansford and Gomez 2010, Artés 2014, Lind 2014), but leftwing parties tend to benefit from electoral institutions that are intended to increase voter turnout (Fowler 2013, Ferwerda 2014, Fujiwara 2015, Bechtel and Schmid 2016, Hoffman et al. 2017). Thus, our second hypothesis to be investigated is that the conservative ÖVP does not benefit from extended opening hours, while all other Austrian parties (social democratic SPÖ, Green party, rightwing populist FPÖ) stand to gain additional votes.

3. Empirical analysis

We use a natural experiment in Burgenland. We take advantage of an electoral reform in 2015 that gave rise to exogenous variation in opening hours and allows us to estimate the causal effect of polling station opening hours on voter turnout and on party vote shares.

3.1 Institutional setting

Burgenland is the smallest of the nine states (*Bundesland*) of the Republic of Austria in terms of population (2015: about 290,000). The largest city is the capital Eisenstadt with about 13,700 inhabitants. Burgenland was part of Hungary until 1921. Burgenland now shares a border of 400 km with Hungary and some small borders with Slovakia in the North and Slovenia in the South. Its neighboring Austrian states are Styria and Lower Austria; and travelling by car or train from the North of Burgenland to Austria's capital of Vienna takes just 30 minutes.

Burgenland is somewhat hilly in the center, but flat in the north and south. Three main languages are spoken in the 171 Burgenland municipalities (*Gemeinden*): German (around 90 percent), Burgenland-Croatian/Croatian (7 percent) and Hungarian (2 percent). Both Croatian and Hungarian speaking citizens, however, widely perceive themselves as Austrians and language or ethnicity was never a prominent issue in political campaigns in Burgenland.⁴ Municipalities have between one to eight localities (*Ortsteil* or *Ortschaft*); there are 328 localities in total. Municipalities with only one locality (65 percent) and municipalities with multiple localities (35 percent) hardly differ in terms of average population (1,641 and 1,772 inhabitants). Municipalities are grouped into seven districts (*Politische Bezirke*).⁵

In Austria, electoral institutions such as the voting procedure, day of the election or ballot count are regulated by national and state law. By contrast, local authorities design the number, location and opening hours of polling stations. There is no minimum number of opening hours. Municipalities differ in the opening and closing times of polling stations – depending on local traditions and geography. For example, in the 2015 state election, the municipality of Heugraben closed its polling station at 8.30 a.m. (opening: 6.30 a.m.) half an hour before voting in the neighboring locality Rohr even began (09.00 a.m. to 1.00 p.m.). By law, municipalities have to provide at least one polling station for each of their localities on the regular election day. There were 429 polling stations in the 2015 state election.

In late 2014, the Burgenland state parliament passed an electoral reform for state and local elections (but not for national elections). The reform was intended to further increase voter turnout, which traditionally is already quite high in Burgenland (about 80 percent on average between 2000 and 2017), but was even higher in the late 1960s (1968: 95 percent)

⁴ Language issues also did not receive any attention in the 2015 state election campaigns, which were dominated by labor and economic issues.

⁵ The capital city of Eisenstadt and the city of Rust are districts on their own. Both cities are located in the urban north of Burgenland.

and decreased steadily afterwards. In the 2010 state election, voter turnout fell below 80% for the first time. Passing this symbolic threshold helped state politicians to implement a constitutional reform including changes in the election law in 2014. 89 percent of all Members of Parliament (MPs) voted in favor of the constitutional reform (the MPs of the social democratic SPÖ, the conservative Party ÖVP, and the Green Party), while only three MPs from the rightwing populist Freedom Party (FPÖ) and the homeland party “Liste Burgenland” opposed it. The conservative ÖVP was quite critical, but finally agreed on the reform because it was part of a deal with the SPÖ in their joint coalition government. By contrast, the rightwing populist FPÖ was in favor of changes in the election law, but opposed them for strategic reasons.⁶

The electoral reform implemented a mandatory second election day; nine days in advance of the regular election day. Regular voting takes place on Sundays; the second election day is Friday. The core issue of the reform was that at least one polling station per municipality has to be opened for *at least* two hours on the second election day and to cover the time period from 6 to 7 p.m.⁷ In the subsequent 2015 state election, about 85 percent of all municipalities only fulfilled the minimum requirement of the additional two hours. Opening

⁶ In the debate in the state parliament, the ÖVP MP Rudolf Strommer pointed out that his party is not happy with the reform, but will agree to it for coalition reasons. His statement also implies that the social democratic SPÖ and the rightwing populist FPÖ were highly in favor of a second election day, i.e., longer opening hours of polling stations. Original in German language: “Ich sage auch klar, dass meine Partei nicht euphorisch für die Einführung eines zweiten Wahltages war, weil wir der Meinung sind, dass wir mit einem guten System der Briefwahl, mit einem Wahltag und mit der Sonderwahlbehörde eigentlich das Auslangen hätten finden können. Aber in einer Verhandlungsrunde kann sich niemand zu 100 Prozent durchsetzen. Wir haben hier den Willen anderer Parteien, auch die Freiheitliche Partei und die SPÖ haben vehement diesen zweiten Wahltag gefordert, wir haben dem auch schlussendlich zugestimmt, weil sich niemand zu 100 Prozent durchsetzen kann.” (Stenographisches Protokoll der 57. Sitzung der XX. Gesetzgebungsperiode des Burgenländischen Landtages (Thursday, 11. December 2014, 10.07 a.m.- 4.10 p.m.), p. 6927).

⁷ Local politicians may have strategically chosen where in a locality they open the additional ballot box on the second voting day (the location of polling stations may well influence voter turnout and party vote shares – see Brady and McNurty 2011, Bhatti 2012 and Gibson et al. 2013). For example, municipalities with leftwing majorities may open the additional ballot box in a neighborhood in which citizens are especially inclined to vote for the leftwing party. There was no strategic placement of ballot boxes. Two thirds of the municipalities have just one locality and thus offered one additional ballot box in the city hall. The other third of the municipalities (with more than one locality), however, also offered just one additional ballot box in the city hall. Only two municipalities (Mattersburg and Rotenturm an der Pinka) offered more than one additional ballot box.

hours on the regular election day remained fairly unchanged. Figure 2 shows that municipalities opened polling stations for roughly six hours on average before 2015. Only very few municipalities slightly changed their opening hours compared to the election in 2013.⁸ We thus assume regular opening hours to be constant throughout the entire pre-reform period. The electoral reform gave rise to a higher level of about eight opening hours on average in 2015. State law, however, only applies to state and local elections. Hence, the opening hours of polling stations were not extended and returned to their pre-reform level in the 2017 national election.

[Figure 2 about here]

The absolute differences in opening hours between municipalities hardly changed in the course of the reform. By contrast, the *relative* change in opening hours differs substantially between municipalities. For example, a municipality with four pre-reform opening hours experienced a relative increase of 50 percent in opening hours given the minimum requirement of two additional opening hours. If the municipality opened eight hours prior to 2015 the increase was only 25 percent. We exploit this variation in treatment *intensity* arising from pre-reform differences in opening hours.

3.2 Identification strategy

We use a difference-in-differences approach and year and municipality fixed effects to identify the causal effect of opening hours on voter turnout. Our approach is related, for example, to Card (1992), Acemoglu et al. (2004) and Finkelstein (2007).⁹ We exploit

⁸ The within coefficient of variation amounts to only 0.06. The coefficient of variation is computed as the ratio of the within standard deviation of opening hours (0.36) and the mean of opening hours (5.67).

⁹ Card (1992) shows the extent to which employment changed when the federal minimum wage increased in the United States. The effects differed across states depending on how many workers initially earned less than the new federal minimum wage. Acemoglu et al. (2004) show that the higher WWII mobilization rate of men in US states gave rise to a greater female labor supply. Finkelstein (2007) identifies the effect of introducing Medicare in 1965 on hospital spending. Health insurance coverage of the elderly differed substantially between states

exogenous variation based on pre-reform differences in a similar manner. Against the background of the different traditions in polling station opening hours in Burgenland, increasing opening hours by the same *absolute* amount of two hours implies different treatment intensities in terms of relative changes. Year fixed effects capture aspects of the reform, which influence all municipalities to the same extent.

The key identifying assumptions are (i) sorting into treatment intensity was exogenous and (ii) all municipalities follow a common pre-reform trend, which would have continued in the absence of the opening hour extension. By law, the treatment influenced all municipalities. Municipalities could not adjust opening hours in elections prior to the treatment because the state parliament did not deal with the electoral reform before 2014. The last elections before the reform were in 2013 (national elections) and 2010 (state elections). Around 67 percent of all municipalities did not change the regular (Sunday) opening hours of polling stations between 2013 and 2015. Opening hours on the regular election day changed by more than one hour between 2013 and 2015 in only 5 percent of all municipalities. Average opening hours on the regular election day (Sunday) thus remained fairly unchanged (2010: 5.8 hours, 2013: 5.7 hours, 2015: 5.5 hours). Figure 3 shows that treatment intensity (i.e., the relative change in opening hours) is hardly correlated with pre-treatment voter turnout. The correlation coefficient of the change in opening hours and pre-reform voter turnout (state election in 2010) is $r = 0.09$ and does not turn out to be statistically significant (see Figure 3).

[Table 2 about here]

We also examine whether municipalities differ in observable characteristics among the treatment intensity. The pre-reform characteristics of the municipalities should not predict

before Medicare was introduced in the United States. After the health care reform of 1965, insurance coverage was fairly equal across states.

treatment intensity. Figure A.1 in the Appendix shows that pre-treatment characteristics (including party vote shares) are hardly correlated with treatment intensity. The correlation of the change in opening hours and rainfall on the state election day in 2010 is the largest correlation coefficient among all other variables ($r = -0.348$). To be sure, it is unlikely that rainfall on an individual day can predict changes in opening hours. Altogether, neither pre-reform voter turnout, nor previous party vote shares, nor other observable characteristics predict treatment intensity.

We distinguish between a subsample (panel A) and the full sample of municipalities (panel B see Table 2). Panel A is a strictly defined sample. This panel (strict sample) includes the 83 municipalities that fulfill the minimum requirement of two additional opening hours only and do not change opening hours at the regular election day between the 2010 and the 2015 state election. This mitigates strategic adjustment like extending opening hours by more than two hours at the second election day (because, for example, municipalities expected voter turnout to increase due to the reform) or decreasing opening hours at the regular election day. Panel B includes the full sample of all 171 municipalities. Voter turnout (81.3 percent and 80.7 percent on average) and the descriptive statistics of explanatory variables, however, hardly differ between the two panels (see Table 2).

[Figure 3 about here]

The assumption of common pre-reform trends seems to be met: Figure 4 shows mean voter turnout for state and national elections since 2000 by three subgroups and indicates that the pre-reform trends are common. The subgroups are defined by pre-treatment opening hours, i.e., opening hours in 2010, and basically reflect the lower, center and upper 33 percent quantile in terms of opening hours. The municipalities of the three quantiles follow a common trend and exhibit *similar* means up to the electoral reform. Pre-reform characteristics should thus not influence “selection” into treatment. In the reform election of 2015, the trends of the

three groups differ. The group with the lowest level in pre-reform opening hours experienced an increase in voter turnout, the center group hardly experienced any changes, and the group with a high pre-reform level of opening hours experienced somewhat lower voter turnout. In other words, the higher the relative change in opening hours, the higher the change in voter turnout. Remarkably, group spreads in voter turnout vanished in the 2017 national election when polling station opening hours were not extended, providing further strong support for common trends.

[Figure 4 about here]

We portray changes in voter turnout and in the opening hours of polling stations between the last pre-reform and the reform state election. Large increases in opening hours from 2010 to 2015 were associated with higher voter turnout, especially in the Southern part of Burgenland (Figure 5).

[Figure 5 about here]

Overall, descriptive statistics indicate that longer opening hours did increase voter turnout.

3.3 Data and regression design

We use data for the last four Burgenland state elections (2000, 2005, 2010 and 2015), and the last four national elections (2002, 2006, 2008, 2013 and 2017); for details see Table A.1 in the Appendix. Extended opening hours of polling stations only applied to the 2015 state election. Election data are obtained from the Burgenland state administration and the Austrian Federal Ministry of the Interior. District administrations provided data on the opening hours of polling stations upon request. We compile data on other explanatory variables from the Federal Statistical Office of Austria, which are explained in greater detail below.

Our difference-in-differences OLS model with municipality and (election) year fixed effects takes the following form:¹⁰

$$Turnout_{it} = \alpha_i + \delta_t + \beta(Treat_i \times Reform_t) + X'_{it}\gamma + \varepsilon_{it}$$

$$\text{with } i = 1, \dots, 171 \text{ and } t = 1, \dots, 9$$

where $Turnout_{it}$ describes the share of voters in municipality i at election year t . α_i are municipality fixed effects, δ_t are election year fixed effects. The interaction term ($Treat_i \times Reform_t$) describes the treatment effect of a relative increase in opening hours and is our coefficient of interest. $Treat_i$ describes the relative change in opening hours provided in municipality i . We compute $Treat_i$ as follows: $Treat_i = (Add_{i,2015}/Reg_{i,2015}) \times 100$. $Add_{i,2015}$ describes opening hours at the additional election day in municipality i in 2015 (in most cases: two hours) and $Reg_{i,2015}$ describes opening hours at the regular election day in 2015. Reg_i , however, is hardly time-invariant (see above). $Reform_t$ is one for the reform election in 2015 and zero for elections without the extended opening hours of polling stations. The baseline variables $Treat_i$ and $Reform_t$ are collinear to municipality and year fixed effects and cannot be included in the model. For robustness tests, we will also include the interaction term between $Reform_t$ and other measures such as the share of the commuting population to address that channels other than opening hours influenced voter turnout in 2015.

The vector X includes several control variables. We include economic, socio-demographic, political and weather variables. Firstly, education and income have been shown to influence voter turnout. The Austrian government does not, however, compile education and income measures at a local level on an annual basis. Income and education are often

¹⁰ We also use a fractional logit model (Papke and Wooldridge 1996) because our dependent variable voter turnout is conceptually censored to a minimum of 0 and a maximum of 1 (or rather 100 percent). In our sample, voter turnout takes on values from 52 percent to 93 percent (see Table 2). Inferences do not change when we use a fractional logit instead of Ordinary Least Squares (OLS).

shown to be positively correlated. We include municipal tax revenue, which reflects the local wage level as a proxy for income (and education).¹¹ Secondly, we include socio-demographic measures. When the share of elderly, especially those in need of care, increases, voter turnout is likely to decrease. We include the share of population older than 75 years. A higher share of foreigners may also decrease voter turnout. In 2015, a large-scale influx of refugees from Balkan countries and Middle East and North African countries occurred. Voters in municipalities with a higher share of foreigners may oppose the “refugee-friendly” policy of the national Austrian government by abstaining from elections.¹² We include the share of female population to address a potential voting gender gap (women are expected to participate in elections more actively than men). Thirdly, rainfall has been shown to influence voter turnout (see, for example, Gomez et al. 2007, Knack 1994). We use hourly regional data on rainfall in Burgenland and compute the average rainfall in milliliter (liter per square meter) during opening hours (for more details, see Table A.1 in the Appendix). We include a dummy for national elections and for elections after 2007 (*Election liberalization*) when the national parliament ratified postal voting and decreased the minimum age to vote to 16 years for all elections in Austria. ε_{it} describes an error term. We estimate the baseline difference-in-differences model using OLS with standard errors clustered at the municipal level.

4. Results

4.1 Baseline

Table 3 shows our baseline results for two different panels of municipalities. Panel A (left-hand side) relates to municipalities, which fulfill the legal minimum increase in opening hours

¹¹ Municipal tax revenue is basically based on the local business tax (*Kommunalsteuer*) levied at a rate of 3 percent of gross wages.

¹² There is no time-varying data available on religion of the population that may well also influence voter turnout (Hillman et al. 2015).

of two hours only and do not change opening hours at the regular election day. Strategic adjustment is unlikely in these municipalities in terms of an anticipated voter turnout effect. Panel B (right-hand side) includes all 171 municipalities of Burgenland. We show the results of models only including the explanatory variable ($Treat \times Reform$) and fixed effects and models including all explanatory variables. The results show that inferences do not depend on including or excluding individual explanatory variables. We also show results based on the last four state elections only (columns (1) and (2), (5) and (6)) and results based on the last nine state and national elections since 2000 (columns (3) and (4), (7) and (8)).

The treatment effect is statistically significant at the 1 percent level in all specifications. The numerical meaning of the effect is that doubling the opening hours of polling stations (increase in opening hours of 100 percent) increases voter turnout by 5.1 to 8.9 percentage points. Increasing the opening hours by two hours describes a relative increase in opening hours of about 35 percent – given the pre-reform mean in opening hours of about 5 hours and 41 minutes. Our findings indicate that voter turnout increased by around 1.8 to 3.1 percentage points due to the reform-induced additional two opening hours. The reform effect is fairly substantial because voter turnout already amounted to around 80 percent before the reform. Inferences also do not change when we account for spatial correlation by using Conley (1999, 2008) standard errors (see the bottom of Table 3).¹³

[Table 3 about here]

While the share of explained variation in our estimation is reasonably large (for example, an R-squared of 0.782 in column 2 when including control variables), we cannot fully rule out a correlation of the treatment intensity variable with further unobserved

¹³ We use the Stata command provided by Hsiang (2010) and test spatial cutoffs of 5 km, 10 km, and 20 km. In any event, standard errors clustered at the municipal level appear to be more conservative. Therefore, we stick to clustering standard errors at the municipal level. We also use standard errors robust to heteroscedasticity (Huber-White sandwich standard errors – see Huber 1967, White 1980) for robustness tests. Inferences do not change.

variables. We therefore use the procedure proposed by Altonji et al. (2005) and formalized by Oster (2017) to assess the sensitivity to such biases. The test estimates the potential problems stemming from selection-on-unobservables from the sensitivity of the treatment coefficient to the inclusion of observable control variables (for details see Oster 2017).

We follow the application of the test in the context of panel data proposed by Gehring and Schneider (2017). We compare pooled OLS estimations with a limited set of controls (our treatment variable, and time fixed effects) on the one hand, and municipality fixed effects and the full set of controls as shown in columns (2), (4), (6), and (8) on the other. We use the most conservative test specification and set the unknown overall (maximum) R-squared of the model to 1, and the coefficient for proportionality, δ , to 1.

The test procedure of Oster (2017) yields a ratio $|\delta^0|$. The ratio measures the impact of selection-on-unobservables compared to selection-on-observables, which is needed to attribute the full treatment effect to unobservables. A ratio of $|\delta^0| = 1$ would imply that unobservables are as important as observables. The lower part of Table 3 reports the estimates of $|\delta^0|$ ranging from 4.7 to 44.7. Selection-on-unobservables would have to be at least more than four times as important as selection-on-observables to harm the treatment effect, and is therefore unlikely to drive the results. We also report the identified set $[\tilde{\beta}, \beta]$. The set includes the coefficient from the estimation with our full set of controls, β , and a bias-adjusted coefficient $\tilde{\beta}$. Bias-adjustment is based on changes in the coefficient and the R-squared moving from the limited set of controls to the full set of controls (see Oster 2017 or Gehring and Schneider 2017). Table 3 shows that our identified β -set does not include the zero; our estimates can therefore be considered to be robust against a potential omitted variable bias.

4.2 Robustness tests

We test whether the results change when we consider different estimation specifications, sub-groups, postal voting and placebo treatments. We refer to state and national elections.

We include a quadratic treatment interaction term. The negative coefficient of the quadratic term in column (2) in Table 4 (-0.002) indicates an inverted U-shape relationship of opening hours extension and voter turnout. The maximum is reached at the 95th percentile of the distribution of the explanatory variable (roughly a 70 percent increase in opening hours, see Figure A.3 in the Appendix). The marginal gains of longer opening hours diminish. The treatment effect, however, is virtually linear for the changes in opening hours observed in our sample.

[Table 4 about here]

We use only the last pre-reform election (2013) and the first post-reform election in 2015. We exclude municipality fixed effects, include the dummy *Treat* and the variable *Reform*, and estimate a cross-section difference-in-differences model with Pooled OLS. Inferences do not change (see column (3) in Table 4). We obtain results for Panel A (0.077) and for the entire sample (Panel B: 0.053), which are fully in line with our baseline specification (see column (1)).

We restrict our sample to municipalities, which have only one locality to examine the effect of extended opening hours in a more homogenous sample. In municipalities with multiple localities, the second election day was held in only one out of all localities.¹⁴ Voters from other localities were allowed to vote in the “ballot box locality,” but had to travel by car to do so. In municipalities with one locality only, mobility issues are unlikely. Column (4) in

¹⁴ The municipalities of Mattersburg and Rotenturm an der Pinka were exceptions: the second election day was held in two localities each.

Table 4 shows that inferences do not change for the sub-sample of municipalities with only one locality. Thus, geographical fragmentation does not drive results.¹⁵

Postal voting was introduced by federal law in 2007. Municipal voter turnout figures do not include postal voting because postal votes are collected at the district level. Postal voting, however, is hardly important in Burgenland. Between 2008 and 2015, about 5 percent of the electorate chose postal voting. In any event, we add district postal voting voter turnout to “regular” municipal voter turnout. The treatment effect gets slightly smaller compared to our baseline specification, but remains statistically significant at the 5 percent level (column (5) in Table 4).

Columns (6) and (7) in Table 4 show the results for two different placebo treatments. We re-assigned real opening hours to municipalities by alphabetical order. As expected, the alphabetical placebo treatment does not turn out to be statistically significant. We also include the interaction terms of fixed time effects and our treatment measure (see Finkelstein 2007). The reference category is the last pre-reform election in 2013; $Treat \times Reform$ is identical to the interaction of the 2015 time effect and the treatment measure. In Panel B, the results do not show that any of the pre-reform periods differ significantly from the 2013 election (reference category). Only our interaction term of interest is statistically significant. Remarkably, even the interaction effect for the 2017 national election (no extended opening hours) does not turn out to be statistically significant. Hence, we conclude that there was a unique treatment in the reform year 2015. We also do not observe a significant effect of our variable of interest in non-treatment periods in Panel A, with the exception of the long-gone 2002 elections.

¹⁵ For municipalities with more than one locality, we also find a significant and positive treatment effect on voter turnout in panel B. In panel A, the sample gets very small (27 municipalities). The coefficient does not turn out to be statistically significant at conventional levels in panel A (p-value: 0.17).

4.3 *Heterogeneous treatment effects*

We investigate whether the treatment effect varies among treatment intensity (i.e., the level of pre-reform opening hours), and when polling stations open early or close late on the regular election day. Table 4, column (2) already indicated that the effect of longer opening hours on voter turnout may somehow diminish above a certain threshold.¹⁶ Two additional opening hours may especially increase voter turnout in municipalities with short opening hours, but hardly do so in municipalities with long opening hours. Figure 4 indicates that municipalities with long pre-reform opening hours (≥ 7 hours) hardly experienced higher voter turnout. We split the sample into the municipalities with long pre-reform opening hours (low treatment intensity group), and the remaining municipalities (high treatment intensity group). The results in the upper panel of Table 5, columns (2) and (4), show that the treatment effect does not turn out to be statistically significant in the low treatment intensity group (≥ 7 hours). The large point estimate for panel A is mainly caused by the small number of observed municipalities ($n = 24$). By contrast, the treatment effect is statistically significant for the high treatment intensity group of municipalities at least in the full sample with pre-reform opening hours of less than 7 hours (column (3)). The treatment effect slightly fails statistical significance in column (1), an estimate, which is based on a quite small sample. When we split the sample into municipalities with quite long opening hours (≥ 8 hours) and others, we find a significant effect in the high treatment group for panel A and B. Therefore, extending opening hours particularly affected municipalities with lower pre-reform voting opportunities.

[Table 5 about here]

The center panel of Table 5 shows that treatment effects do not differ in municipalities that opened their polling stations on the regular election day before 8 a.m. and municipalities

¹⁶ See also Figure A.3 in the Appendix.

opening later. The effects, however, appear to be somewhat larger in municipalities where early rising was required. Results by closing times are somewhat inconclusive. The bottom of Table 5 shows significant effects for early but also for late closing municipalities, depending on the sample under investigation. Overall, we find little evidence that effects differ in municipalities such as Heugraben with very early opening hours of polling stations from municipalities in which polling stations opened later.

5. Addressing other channels

Polling station opening hours in Burgenland were extended by introducing a second election day (Friday evening), and only one ballot box per municipality had to be opened. All municipalities had to deal with the new electoral institutions. Year fixed-effects should therefore capture all systematic differences influencing all municipalities in the reform year 2015 compared to other election years. However, we also examine whether other measures like the time schedule, which influence the municipalities *asymmetrically*, drive the results.

Table 6 compares our baseline results (column (1)) to models, which include an additional variable for three different further channels: (1) Friday evening voting, (2) the second election day, and (3) a lack of ballot boxes (columns (2) to (5)). All specifications also include our variable measuring the effect of extended opening hours ($Treat \times Reform$). Firstly, one may conjecture that Friday evening voting instead of longer polling station hours may have increased voter turnout. Friday evening voting targets commuters. Commuters may stop on their way home at the ballot box to cast their vote. Non-commuters, by contrast, are not more likely to pass the ballot box on Friday evenings than at any other times. Friday evening voting therefore increases the accessibility of polling stations for commuters to a larger extent than for non-commuters. Therefore, Friday evening voting may have affected municipalities differently, depending on the local share of commuters: the larger the share of

commuters the more appreciated Friday evening voting is. We include the municipal ratio of commuters and electorate, interacted with the reform period. If the effects in the reform election (2015) are driven by Friday evening voting, the interaction term of the share of commuters and the reform period should have a positive effect on voter turnout. We again include year fixed effects, which control for symmetric effects of voting on a Friday evening influencing all municipalities in the same way. However, the share of commuters that interacted with the reform period does not turn out to be statistically significant (column (2)). Moreover, inferences of our variable measuring changes in opening hours (*Treat* × *Reform*) do not change.

[Table 6 about here]

Secondly, the introduction of a second election day might have influenced “busy” municipalities with a high share of working voters. A second election day increases voting opportunities for non-working voters less than for workers facing severe time constraints. In this case, the reform may have had different effects on voter turnout in municipalities with a high share of working voters compared to municipalities with a high share of non-working voters (e.g., pupils, or pensioners). If this is true, we would expect the local workforce to have a positive effect on voter turnout in the reform period. The local ratio of workforce and electorate interacted with the reform period, however, does also not turn out to be statistically significant (column (3)).

Thirdly, in 97 percent of all municipalities with multiple localities, the second election day was held in one locality only (main locality of the municipality). Voters of other localities have to go by car to the “central” ballot box in the main locality if they want to cast their vote on the second election day. This asymmetry in voting opportunities may have disadvantaged municipalities where a large share of population lives outside the main locality. We address this issue in two different ways. Firstly, we interact the reform period dummy with the

municipal share of electorate living in localities without an own ballot box on the second election day. Secondly, we compute the (great circle) distance to the next polling station at the second election day for each locality.¹⁷ The municipal average distance is the mean of all localities. Columns (4) and (5) in Table 6 shows that the absence of a ballot box in a locality did not affect voter turnout: the municipal share of electorate that did not have access to a ballot box in their own locality at the second election day, and the average distance to a ballot box on the second election day does not turn out to be statistically significant in Panel A or in Panel B.

In all specifications in Table 6, inferences regarding the effect of extended opening hours on voter turnout do not change. Other channels than the extension of opening hours are therefore unlikely to drive our results.

We use regional variation in electoral institutions between Austrian states to exclude spurious findings resulting from any other unobservable idiosyncratic event in the election year 2015. In 2015, state and local elections were held in Burgenland and in the Austrian state of Upper Austria, which are not direct geographical neighbors. In contrast to Burgenland, the state government of Upper Austria did not force municipalities to extend opening hours of polling stations. There are, however, many more differences between the 2015 state elections in Burgenland and Upper Austria. Estimating a difference-in-differences model exploiting that Burgenland reformed electoral institutions in 2015, but Upper Austria did not do so, is not suitable.¹⁸ In any event, we should not expect voter turnout to differ by pre-treatment

¹⁷ We assume the distance to the next polling station to be 0 in localities with one ballot box on the second election day.

¹⁸ The state elections in Burgenland and Upper Austria took place on 31 May 2015 and 27 September 2015, and the circumstances in both states differed a great deal, which we cannot address in a difference-in-differences model. In particular, the European refugee crisis was in full swing on 27 September 2015 (it was much less of an issue on 31 May 2015), Upper Austria had state and local elections taking place on the same day (Burgenland just had state elections). Trends in voter turnout in Upper Austria and Burgenland differed prior to 2015 (and continue to do so). Estimating a difference-in-differences model would not help to disentangle whether voter turnout increased in Burgenland because of a second election day or the pure increase in opening hours either.

opening hours in Upper Austria because there was basically no change in opening hours. In fact, Figure 6 shows no differences in voter turnout in the pseudo-treatment period. This contrasts with Figure 4 showing that voter turnout in Burgenland in the reform period differs by pre-treatment opening hours. We conclude that our results for Burgenland are also not driven by idiosyncratic events in the election year 2015.

[Figure 6 about here]

6. Party vote shares

We examine the extent to which longer polling station opening hours influenced the vote shares of the four main parties in Austria: the leftwing SPÖ, the conservative ÖVP, the rightwing populist FPÖ, and the Green Party (Greens). Reverse causality between supporting the reform and voters rewarding/punishing individual parties is unlikely because almost all parties (except four MPs of the rightwing populist FPÖ and the homeland party “Liste Burgenland”) voted for the electoral reform in the state parliament in 2014 (see Section 3.1). The parallel pre-trend assumption also seems to be met for all four main parties (Figure A.2 in the Appendix).

We use the vote shares of each individual party as the dependent variable and estimate the econometric model described in section 3. The upper part of Table 7 shows that the vote share of the conservative ÖVP significantly decreased by 0.7 to 0.9 percentage points when opening hours were extended by 10 percent (Panel A and Panel B). The extension of opening hours by two hours (which is equivalent a relative increase of 35 percent) thus gave rise to a decrease of 2.4 to 3.2 percentage points in the conservative ÖVP vote share, a numerically

To examine the causal effect of increasing opening hours on voter turnout, it is therefore more useful to exploit variation within Burgenland over time and elaborate on treatment intensity (as done by Finkelstein 2007 and others).

important effect. Vice versa, the other three main parties benefited from longer opening hours. The vote shares of the more leftwing Green party (Panel A), of the leftwing SPÖ (Panel B), and of the rightwing FPÖ (Panel B) increased by about 0.25, 0.64 and 0.31 percentage points when opening hours increased by 10 percent. Therefore, as expected, parties supported by voters with a less pronounced sense of civic duty (see section 2) benefit from the reform; the opposite is true for the conservative ÖVP. These results help to explain why conservative parties may oppose longer opening hours (an example being Germany's Christian conservatives when the general secretary of the German leftwing SPD proposed to increase opening hours in December 2014).

[Table 7 about here]

We test whether the results are robust. Inferences do not change when we use state elections only (Table 7, lower part). The longer opening hours of polling stations decreased the ÖVP vote shares and increased the SPÖ and FPÖ vote shares (Panel B). In panel A with the strict treatment definition, the longer opening hours of polling stations increased the vote shares of all parties, with the exception of the vote share of the conservative ÖVP.

Including or excluding control variables does not change the inferences regarding the treatment variable (see Table A.2 in the Appendix). We use municipalities with one locality only. In panel B, longer opening hours decreased the ÖVP vote share (column (7)) and vote share of minor parties (column (10)) and increased the SPÖ vote share (column (6)). The treatment effects lack statistical significance when we use the vote shares of other parties as a dependent variable. In the subsample of one-locality municipalities (panel A), however, the treatment effects lack statistical significance most probably because of the small number of observations. We focus on municipalities with high treatment intensity (pre-reform opening hours of polling stations of less than 7 hours, see section 4.3). In both panels A and B, we find that longer opening hours have substantial negative effects on the ÖVP vote share. In panel B,

we observe a significant increase in the SPÖ vote share. Overall, the results suggest that longer opening hours of polling stations mobilized voters of individual parties in different ways. Voters of the social democratic SPÖ and of the rightwing populist FPÖ (both parties attract blue-collar workers) participated more actively in the 2015 state elections due to the longer opening hours of polling stations. By contrast, longer opening hours decreased the vote share of the conservative ÖVP, whose voters are expected to be more disciplined and to have a stronger sense of civic duty than voters of the leftwing SPÖ and Green party and the rightwing populist FPÖ.

An important question therefore is why the conservative ÖVP supported the reform of extending opening hours in Burgenland. We propose two main explanations. Firstly, the ÖVP is not a dominant party in Burgenland. For decades, the leftwing SPÖ had an absolute majority in the state parliament. In the state election in 2015, the ÖVP received less than 30 percent of the votes. Absolute majorities for the ÖVP are thus fairly unlikely and, in turn, the ÖVP is also unlikely to be active in strategic and opportunistic arrangements. Secondly, the ÖVP was part of a coalition government with the SPÖ. The ÖVP may have expected even larger losses in votes when they would have not supported the reform that was welcomed by the citizens. Voters may well have punished the ÖVP for blocking the reform. The reform was also part of a large-scale deal between SPÖ and ÖVP.¹⁹ In any event, they would not have had enough seats in the state parliament to do so. Moreover, the SPÖ publicly considered coalition agreements with the Green party and the rightwing populist FPÖ. Blocking the electoral reform may have even increased the likelihood for a break-up of the SPÖ-ÖVP coalition.

¹⁹ See also footnote 6.

7. Simulation of parliamentary majorities

We simulate whether longer opening hours would have changed parliamentary majorities in the 2010 state election – the last state election before the electoral reform in 2015. In the 2010 state election, the SPÖ missed the absolute majority in state parliament (19 seats) by only a few votes (vote share: 48.26%). We assume that longer polling station opening hours in 2010 would have affected all municipalities homogenously according to our regression results in Table 3 and Table 7.

In a first step, we estimate the increase of valid votes in voter turnout. We assume that valid votes increase proportionally in voter turnout.²⁰ We simulate election outcomes at the municipal level using point estimates from Table 3, column (8); Table 7, columns (6) to (10). We multiply the municipal-level treatment intensity as of 2015 (i.e., the relative increase in opening hours) with our point estimate of 0.057 (equal across all municipalities) and add the resulting estimated absolute increase in voter turnout to realized 2010 voter turnout. Secondly, we reallocate votes for individual parties according to the estimated changes in vote shares. Paralleling our procedure on voter turnout, we adjust municipal-level vote shares for all parties and compute absolute votes per party and municipality. We sum up the total votes of all municipalities and run the state-law procedure of allocating parliamentary seats.²¹

Table 8 shows the results. Total votes for the ÖVP and small homeland party “Liste Burgenland” would have hardly changed. By contrast, absolute votes for the SPÖ, the Green party, and the rightwing populist FPÖ would have increased. Therefore, the state-aggregated vote share of the social democrats would have increased to 49.30%, giving rise to a swing of one seat from the conservative ÖVP to the SPÖ. The homeland party “Liste Burgenland”

²⁰ Invalid vote shares in the 2010 state election do not significantly differ between SPÖ mayors (1.7%), ÖVP mayors (1.7%), and the small number of other mayors (1.9%). We implement t-tests for each pair of mayors.

²¹ See §§ 74 et seq. of the Gesetz vom 9. November 1995 über die Wahl des Burgenländischen Landtages (Landtagswahlordnung 1995 - LTWO 1995). See also the stepwise procedure for the realized 2010 state election results: <http://wahl.bgld.gv.at/wahlen/lt20100530.nsf/vwMandate/100009>.

would have marginally missed the 4% electoral threshold, yielding an additional seat for the rightwing populist FPÖ. Overall, under extended polling station opening hours, the social democrats would have held an absolute majority in parliament after the 2010 state election and would not need to form a cross-bench coalition with the ÖVP (Figure 7). Polling station opening hours thus may play a more important role in political strategies than recognized to date.

[Figure 7 about here]

[Table 8 about here]

8. Conclusion

Scholars have examined whether electoral institutions intended to increase voter turnout (such as compulsory voting) actually work. Yet, there have been no studies identifying a causal effect of extending opening hours on voter turnout. We estimate the causal effect of longer opening hours of polling stations on voter turnout based on a natural experiment in the Austrian state of Burgenland. The results show that extending opening hours by 10 percent causes the voter turnout to increase by around 0.5 to 0.9 percentage points. An important question is to what extent our findings might be valid for other countries and types of elections.

Voter turnout in Austria is suitable for comparison with voter turnout in other OECD countries (Hoffman et al. 2017). Average pre-reform opening hours of 5 hours and 41 minutes in Burgenland were, however, short compared to those of national elections and other federal states. Polling stations open for about 10 hours in national elections in many OECD countries, for 10 hours in German state elections and for as long as 12 hours in US state elections. The opening hours in Burgenland, however, are highly comparable with the opening hours of other rural Austrian states (6 hours and 45 minutes on average). All other eight Austrian states

open their polling stations for about 7 hours and 9 minutes on average (the opening hours of the urban state of Vienna is far above average at 10 hours). There are also quite short polling station opening hours in Austria's neighboring countries Liechtenstein and Switzerland (about 4 hours in national elections). Extending polling station opening hours might also be a more "soft" substitute for compulsory voting, for example, in Belgium and Luxemburg, where polling stations open for 5 to 6 hours in national elections. We therefore believe that the effects estimated based on the reform in Burgenland may help to predict the potential effects in other countries and states.

The results also show that the vote share of the conservative party ÖVP decreased and the vote shares of the leftwing SPÖ and the rightwing populist FPÖ somewhat increased in the course of longer opening hours. Parliamentary majorities may change with extended opening hours. Previous studies also showed that other electoral institutions like introducing compulsory voting benefitted leftwing parties. The chance of extending the opening hours of polling stations in other countries is thus also likely to depend on political preferences and may change parliamentary majorities, too. Political self-interest also determines whether there is support for policies that increase voter turnout such as extending the opening hours of polling stations.

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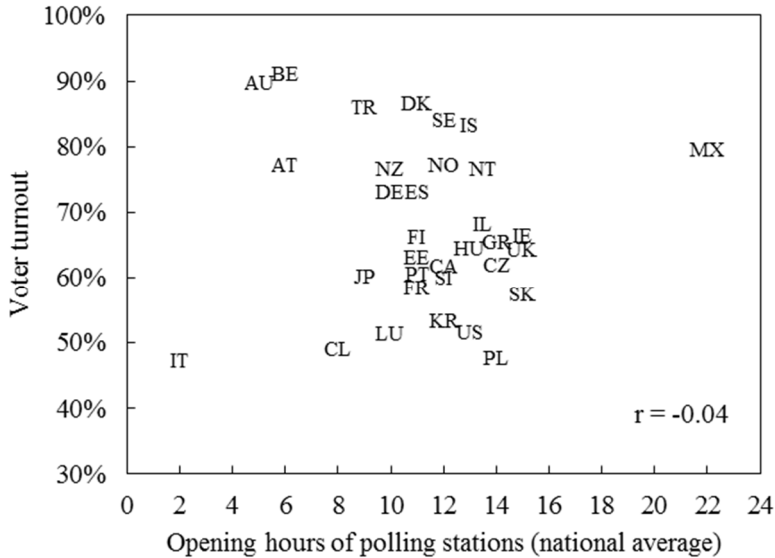
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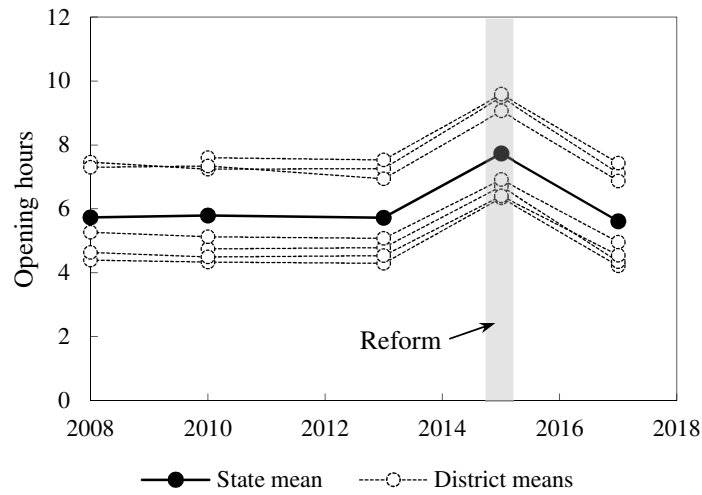
Figures

FIGURE 1. OPENING HOURS AND VOTER TURNOUT IN NATIONAL ELECTIONS



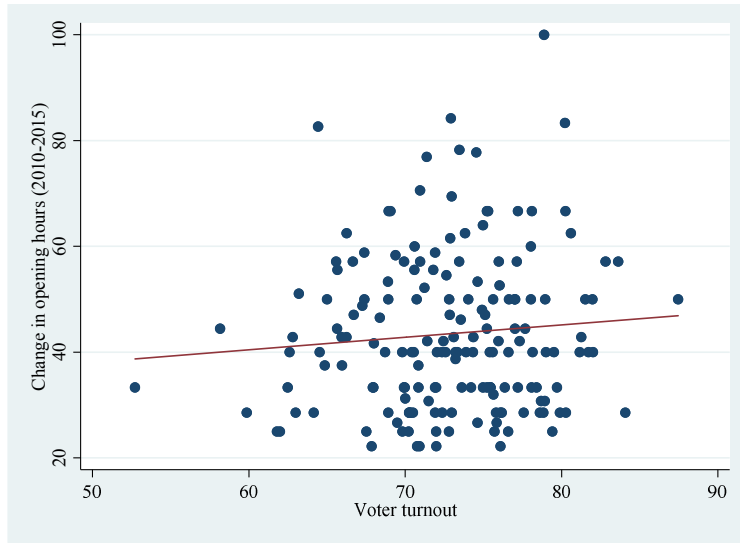
Notes: The figure shows mean opening hours of polling stations and voter turnout for 34 OECD countries over the period 2002–2015. In cases of regional differences we compute the national average of opening hours. Voter turnout: Mean of the last three national elections (CL: last election only because compulsory voting was abolished in 2013). *Sources:* Data on voter turnout are obtained from the Global Database for Election and Democracy compiled by the International Institute for Democracy and Electoral Assistance (International IDEA, www.idea.int/db). Data on opening hours are self-compiled from websites of national election authorities (all data available upon request).

FIGURE 2. OPENING HOURS OF POLLING STATIONS IN BURGENLAND, 2008–2017



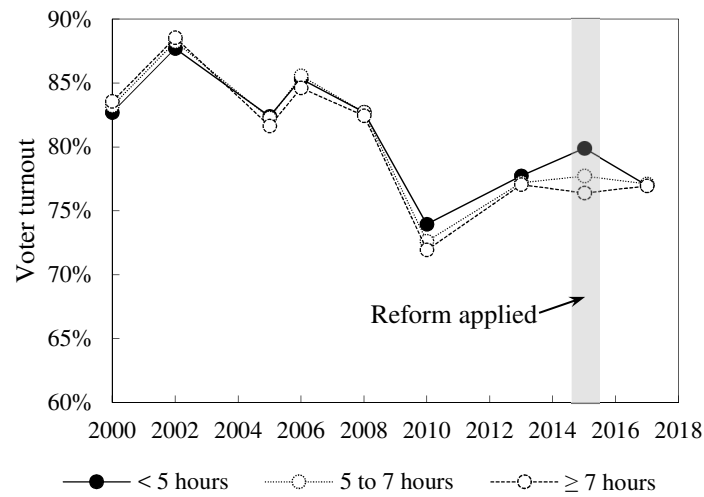
Notes: The figure shows the mean of opening hours of polling stations in Burgenland for the state elections in 2010 and 2015, for the national elections in 2008, 2013, and 2017. The solid line describes the overall Burgenland mean in opening hours. Dashed lines describe mean opening hours of the seven districts of Burgenland. The cities of Eisenstadt and Rust were assigned to the district of Eisenstadt-Umgebung. 2008: Data for the districts of Jennersdorf and Mattersburg missing. 2010: Data for the district of Güssing missing; replaced by opening hours in 2009 European election.

FIGURE 3. PRE-REFORM VOTER TURNOUT AND CHANGE IN OPENING HOURS (2010–2015)



Notes: The figure plots pre-reform voter turnout (state election 2010) against the relative change in opening hours from 2010 to 2015 (municipal level). See Figure A.1 in the Appendix for plots of other pre-reform characteristics.

FIGURE 4. VOTER TURNOUT IN BURGENLAND BY PRE-REFORM OPENING HOURS, 2000–2017

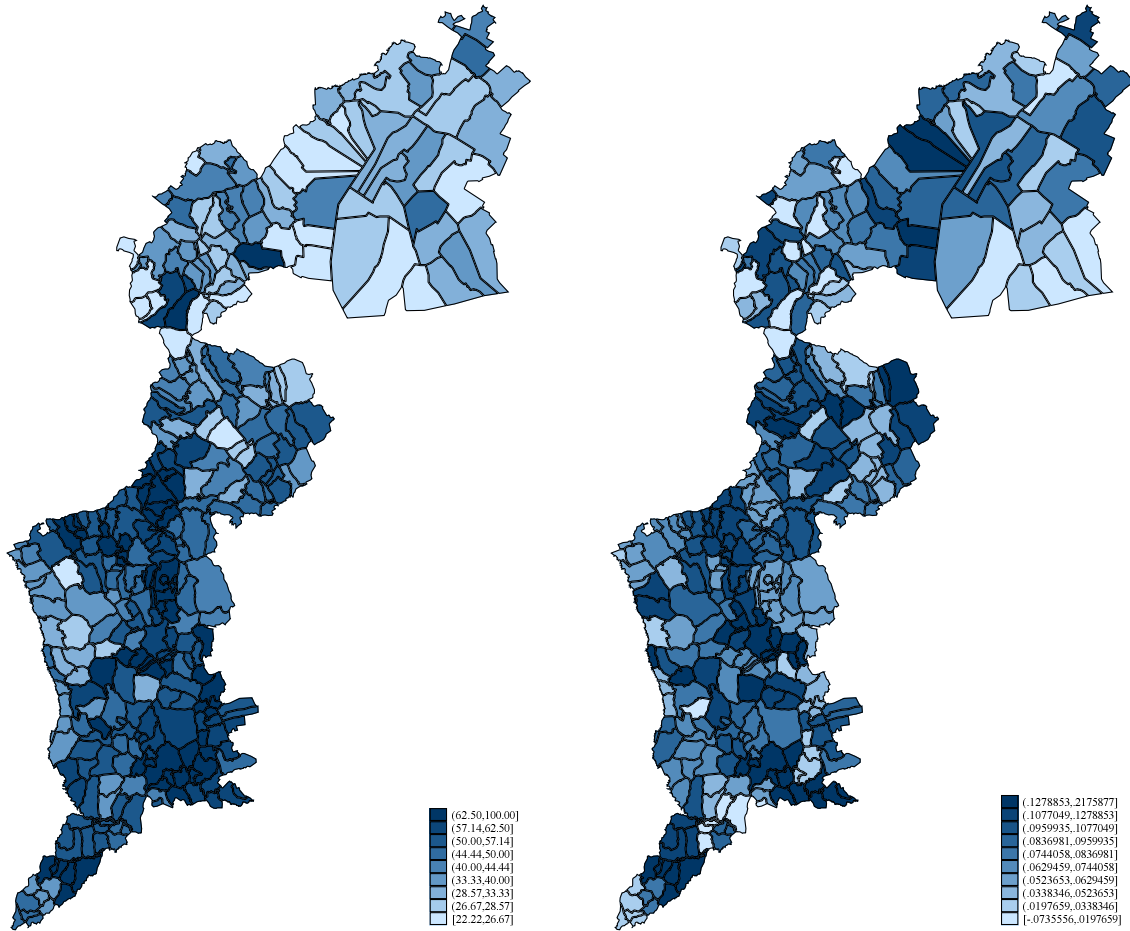


Notes: The figure shows mean voter turnout in Burgenland for the state elections in 2000, 2005, 2010 and 2015, for the national elections in 2002, 2006, 2008, 2013, and 2017. The lines describe voter turnout for the roughly lower 33 percent quantile (< 5 hours, solid line), center 33 percent quantile (5 to 7 hours, dotted line) and upper 33 percent quantile (\geq 7 hours, dashed line) in terms of pre-reform opening hours (state election 2010).

FIGURE 5. CHANGE IN OPENING HOURS AND VOTER TURNOUT

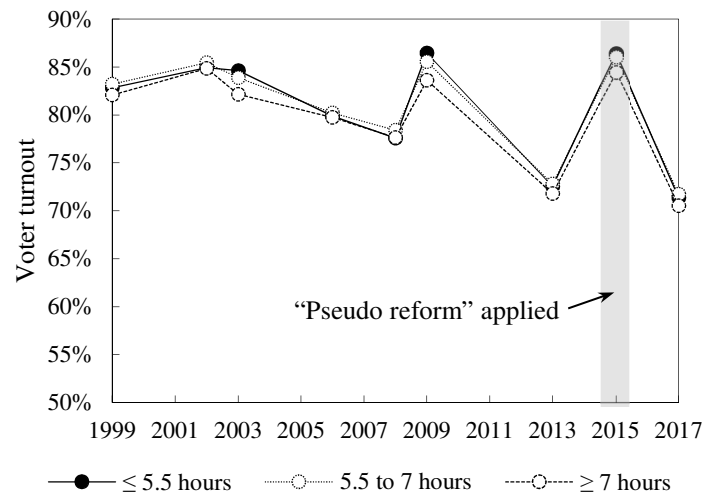
Change in opening hours 2010–2015 (in percent)

Change in voter turnout 2010–2015 (in percent)



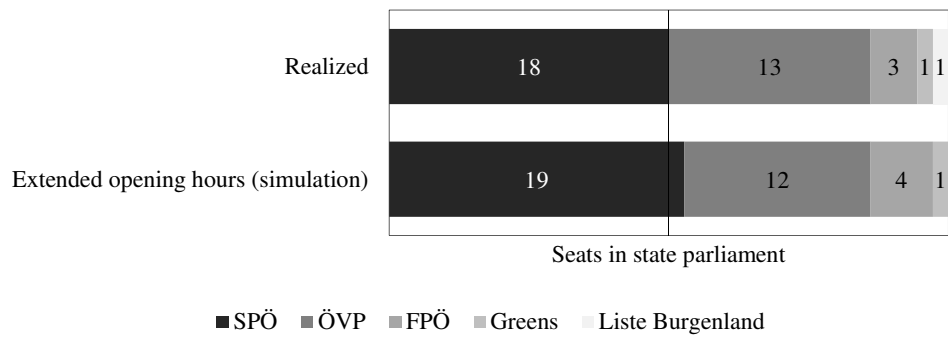
Notes: The left-hand map shows the relative increase in opening hours of polling stations in municipalities from 2010 to 2015 in Burgenland. The right-hand map shows the relative increase in voter turnout in the state elections from 2010 to 2015.

FIGURE 6. VOTER TURNOUT IN UPPER AUSTRIA BY (PSEUDO) PRE-REFORM OPENING HOURS, 1999–2017



Notes: The figure shows mean voter turnout in Upper Austria for the state elections in 2003, 2009 and 2015, for the national elections in 1999, 2002, 2006, 2008, 2013, and 2017. The lines describe voter turnout for the roughly lower 33 percent quantile (< 5.5 hours, solid line), center 33 percent quantile (5.5 to 7 hours, dotted line) and upper 33 percent quantile (≥ 7 hours, dashed line) in terms of pre-reform opening hours (state election 2010).

FIGURE 7. SIMULATION OF THE STATE ELECTION IN 2010



Notes: The figure shows realized (2010 opening hours) and simulated seats (extended 2015 opening hours) for the 2010 state election.

Tables

TABLE 1. CIVIC DUTY BY AUSTRIAN PARTY SUPPORTERS

<i>Party voted for in 2008 national election</i>	<i>Voting behavior in 2013 referendum on compulsory military service</i>		
	<i>Voter turnout</i>	<i>Yes vote share</i>	<i>Yes votes in % of all 2008 voters</i>
	(1)	(2)	(3) = (1) × (2)
<i>SPÖ</i>	68%	37%	25%
<i>ÖVP</i>	86%	80%	70%
<i>FPÖ</i>	43%	70%	30%
<i>Greens</i>	66%	31%	20%
<i>Other parties^a</i>	55%	66%	36%
<i>Non-voters</i>	3%	67%	2%
<i>Total</i>	52%	60%	31%

Notes: The table shows the total results of a 2013 referendum (not binding) on the compulsory military service in Austria and results by voters in the previous 2008 national election. The table reads as follows: 68% of all voters for the SPÖ in the 2008 election turned out for the 2013 referendum; 37% of these voters in the referendum voted yes. a) Mean of BZÖ and all other parties. Source: SORA and ISA (2013).

TABLE 2. DESCRIPTIVES

	<i>Panel A</i> (<i>Strict sample</i>)					<i>Panel B</i> (<i>Full sample</i>)				
	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Voter turnout</i>	747	81.29	5.77	59.86	93.18	1,539	80.71	6.14	52.71	93.23
<i>SPÖ vote share</i>	747	44.41	11.86	9.73	78.98	1,539	44.28	11.61	9.73	84.78
<i>ÖVP vote share</i>	747	34.98	11.81	10.41	77.70	1,539	34.44	11.53	6.52	77.70
<i>FPÖ vote share</i>	747	12.50	7.60	0.40	39.29	1,539	12.57	7.58	0	39.31
<i>Greens vote share^a</i>	747	4.08	1.82	0	11.73	1,539	4.49	2.29	0	17.79
<i>Other parties vote share</i>	747	4.03	3.90	0	25.54	1,539	4.22	4.38	0	41.60
<i>Treat</i>	747	39.65	12.81	22.22	84.21	1,539	43.47	14.78	22.22	100.00
<i>Reform</i>	747	0.11	0.31	0	1	1,539	0.11	0.31	0	1
<i>Treat × Reform</i>	747	4.41	13.18	0	84.21	1,539	4.83	14.53	0	100.00
<i>Population</i>	747	1,213	657	316	4,609	1,539	1,652	1,413	58	14,339
<i>Share of female</i>	747	50.68	1.32	46.36	54.27	1,539	50.88	1.36	45.19	60.29
<i>Share of foreigners</i>	747	4.60	3.01	0.23	18.06	1,539	4.82	3.41	0	45.07
<i>Share of population > 75 years</i>	747	9.59	2.34	4.45	18.32	1,539	9.64	2.23	3.56	18.91
<i>Unemployed per 1,000 capita</i>	747	2.54	1.63	0.28	8.57	1,539	2.47	1.60	0	9.30
<i>Tax revenue^b</i>	747	0.20	0.16	0.03	1.01	1,539	0.22	0.18	0.02	1.46
<i>Rainfall^c</i>	747	0.04	0.11	0	1.69	1,539	0.04	0.11	0	1.69
<i>National election</i>	747	0.56	0.50	0	1	1,539	0.56	0.50	0	1
<i>Election liberalization^d</i>	747	0.56	0.50	0	1	1,539	0.56	0.50	0	1
<i>Share of commuters</i>	83	41.19	6.18	27.23	55.10	171	40.22	6.20	23.76	60.42
<i>Share of workforce</i>	83	53.25	6.10	40.05	68.71	171	53.15	6.08	32.34	69.22
<i>Share of voters without own ballot box</i>	83	14.41	23.17	0	86.70	171	14.93	23.94	0	86.70
<i>Distance to ballot box on sec. elec. day</i>	83	0.37	0.71	0	3.79	171	0.46	0.78	0	3.79

Notes: The table shows the descriptives of a sample of municipalities which fulfill the minimum requirement of two additional opening hours only and do not change opening hours on the regular election day between 2010 and 2015 (Panel A) in columns (1)–(5), and for the full sample in columns (6)–(10). The panels include data on 83 (171) municipalities for nine state and national elections between 2002 and 2017. a) Green party in 2017 includes Liste Pilz. b) Total municipal tax revenue in Euro per 1,000 capita. c) Milliliter (liter per square meter) per opening hour. d) We include a dummy for elections after 2007 (2008, 2010, 2013, 2015, and 2017). National parliament ratified postal voting and decreased the minimum age to vote to 16 years for all elections in Austria in 2007.

TABLE 3. BASELINE RESULTS

	<i>Dependent variable: Voter turnout</i>							
	<i>Panel A</i>				<i>Panel B</i>			
	<i>(Strict sample)</i>				<i>(Full sample)</i>			
	<i>State elections</i>		<i>State and national elections</i>		<i>State elections</i>		<i>State and national elections</i>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<i>Treat × Reform</i>	0.081*** (0.026)	0.074*** (0.027)	0.089*** (0.028)	0.081*** (0.028)	0.054*** (0.017)	0.051*** (0.016)	0.061*** (0.017)	0.057*** (0.017)
<i>Population</i>		-0.010*** (0.002)		-0.007*** (0.001)		-0.003*** (0.001)		-0.002*** (0.001)
<i>Share of female</i>		0.385* (0.201)		0.204 (0.147)		0.201 (0.146)		-0.039 (0.109)
<i>Share of foreigners</i>		0.091 (0.109)		0.152** (0.071)		0.014 (0.055)		0.013 (0.039)
<i>Share of population > 75 years</i>		-0.140 (0.162)		-0.277** (0.124)		-0.245 (0.180)		-0.186** (0.074)
<i>Unemployed per 1,000 capita</i>		-0.121 (0.189)		-0.284** (0.134)		-0.277** (0.135)		-0.352*** (0.104)
<i>Tax revenue</i>		6.620* (3.424)		3.637 (2.278)		1.651 (2.528)		0.509 (1.400)
<i>Rainfall</i>		-2.322** (0.952)		-1.537* (0.908)		-2.785*** (0.836)		-2.389*** (0.836)
<i>National election</i>				1.507 (1.219)				0.948 (0.881)
<i>Election liberalization</i>		-7.151*** (1.289)		-7.241*** (0.570)		-4.699*** (0.976)		-7.182*** (0.388)
<i>Constant</i>	75.825*** (1.025)	76.204*** (10.194)	77.776*** (0.312)	83.265*** (8.247)	75.661*** (0.723)	79.442*** (8.043)	77.013*** (0.209)	91.029*** (5.735)
<i>Mean of the dependent variable</i>	79.794	79.794	81.294	81.294	79.019	79.019	80.707	80.707
<i>Municipality fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	332	332	747	747	684	684	1,539	1,539
<i>Within R-squared</i>	0.756	0.782	0.753	0.766	0.785	0.800	0.776	0.782
<i>Conley (2008) standard errors</i>								
Cutoff 5 km	(0.023)***	(0.024)***	(0.028)***	(0.028)***	(0.014)***	(0.013)***	(0.017)***	(0.017)***
Cutoff 10 km	(0.013)***	(0.014)***	(0.017)***	(0.018)***	(0.012)***	(0.010)***	(0.018)***	(0.019)***
Cutoff 20 km	(0.015)***	(0.017)***	(0.019)***	(0.021)***	(0.015)***	(0.011)***	(0.020)***	(0.019)***
<i>Oster (2017) bound estimates</i>								
Identified β -set	[0.066, 0.074]		[0.081, 0.089]		[0.050, 0.051]		[0.057, 0.064]	
$ \delta^0 $ (Restricted: Time fixed eff.)	4.678		13.241		8.733		44.652	

Notes: Voter turnout in municipalities of the Austrian state of Burgenland in the state elections in 2003, 2009 and 2015 (columns (1), (2), (5), (6)), and in state elections and in the national elections in 1999, 2002, 2006, 2008, 2013, and 2017 (columns (3), (4), (7), (8)) is the dependent variable. All estimations include municipality and time fixed effects. National election: dummy for all national elections. Election liberalization: dummy for all elections after 2007 (introduction of postal voting, decrease in legal voting age, see Table 2). Oster (2017) bound estimates: Relative impact of unobservables to observables needed to attribute the full treatment effect to unobservables ($|\delta^0|$). The identified β -set is bounded on one side by the controlled treatment effect and on the other by the bias-adjusted effect. Significance levels (standard errors clustered at the municipal level in brackets): *** 0.01, ** 0.05, * 0.10.

TABLE 4. ROBUSTNESS TESTS

Panel A (Strict sample)	Dependent variable: Voter turnout						
	Baseline	Quadratic specification	2015–2013	One locality only	Postal votes added	Placebo treatment	Pre-reform treatments
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Treat × Reform</i>	0.081*** (0.028)	0.282** (0.117)	0.077** (0.031)	0.112** (0.054)	0.069** (0.027)	0.003 (0.026)	0.071** (0.031)
<i>(Treat × Reform)²</i>		-0.002* (0.001)					
<i>Treat × 2017</i>							-0.010 (0.028)
<i>Treat × 2010</i>							0.024 (0.035)
<i>Treat × 2008</i>							-0.017 (0.030)
<i>Treat × 2006</i>							0.000 (0.030)
<i>Treat × 2005</i>							0.024 (0.030)
<i>Treat × 2002</i>							-0.059** (0.029)
<i>Treat × 2000</i>							-0.061 (0.037)
<i>Mean of the dependent variable</i>	81.294	81.294	78.505	81.728	85.091	81.294	81.294
<i>Full set of controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>	Yes	Yes	No	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	747	747	166	504	747	747	747
<i>Within R-squared</i>	0.766	0.767	0.271	0.767	0.698	0.762	0.771
Panel B (Full sample)	Dependent variable: Voter turnout						
	Baseline	Quadratic specification	2015–2013	One locality only	Postal votes added	Placebo treatment	Pre-reform treatments
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Treat × Reform</i>	0.057*** (0.017)	0.190** (0.077)	0.053** (0.022)	0.060** (0.027)	0.049*** (0.016)	0.018 (0.017)	0.048** (0.022)
<i>(Treat × Reform)²</i>		-0.001* (0.001)					
<i>Treat × 2017</i>							-0.024 (0.016)
<i>Treat × 2010</i>							0.018 (0.023)
<i>Treat × 2008</i>							-0.019 (0.020)
<i>Treat × 2006</i>							0.002 (0.019)
<i>Treat × 2005</i>							0.004 (0.019)
<i>Treat × 2002</i>							-0.027 (0.020)
<i>Treat × 2000</i>							-0.029 (0.021)
<i>Mean of the dependent variable</i>	80.707	80.707	77.658	81.212	84.494	80.707	80.707
<i>Full set of controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>	Yes	Yes	No	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	1,539	1,539	342	1,008	1,539	1,539	1,539
<i>Within R-squared</i>	0.782	0.783	0.266	0.771	0.718	0.779	0.784

Notes: Voter turnout is the dependent variable. All estimations except column (3) include a full set of controls (Table 3), municipality and time fixed effects. 2015–2013: Last pre-reform and first post-reform election only; estimation includes a dummy *Treat* and a variable *Reform* and excludes municipality fixed effects. One locality only: Municipalities consisting of one locality only. Postal votes added: District-level voter turnout in postal voting added to municipal-level voter turnout. Placebo treatment: Assignment of the treatments by alphabetical order. Sub-periods: Interaction of relative increase in voter turnout with time fixed effects (reference category: interaction of treat and 2013). By definition, $Treat \times Reform = Treat \times 2015$. Significance levels (robust standard errors clustered at the municipal level in brackets): *** 0.01, ** 0.05, * 0.10.

TABLE 5. HETEROGENEOUS EFFECTS

		<i>Dependent variable: Voter turnout</i>			
<i>Pre-reform opening hours</i>		<i>Panel A (Strict sample)</i>		<i>Panel B (Full sample)</i>	
		\leq Median	> Median	\leq Median	> Median
		(1)	(2)	(3)	(4)
<i>Treat × Reform</i>		0.047 (0.036)	0.208 (0.231)	0.046** (0.020)	-0.014 (0.038)
<i>Mean of the dependent variable</i>		81.408	81.013	80.850	80.444
<i>Full set of controls</i>		Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>		Yes	Yes	Yes	Yes
<i>Time fixed effects</i>		Yes	Yes	Yes	Yes
<i>Obs.</i>		531	216	999	540
<i>Within R-squared</i>		0.761	0.793	0.771	0.814
		<i>Dependent variable: Voter turnout</i>			
<i>Opening time</i>		<i>Panel A (Strict sample)</i>		<i>Panel B (Full sample)</i>	
		\leq Median	> Median	\leq Median	> Median
		(1)	(2)	(3)	(4)
<i>Treat × Reform</i>		0.174*** (0.050)	0.039 (0.032)	0.055* (0.028)	0.044** (0.020)
<i>Mean of the dependent variable</i>		81.543	81.129	80.516	80.837
<i>Full set of controls</i>		Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>		Yes	Yes	Yes	Yes
<i>Time fixed effects</i>		Yes	Yes	Yes	Yes
<i>Obs.</i>		297	450	621	918
<i>Within R-squared</i>		0.782	0.767	0.776	0.791
		<i>Dependent variable: Voter turnout</i>			
<i>Closing time</i>		<i>Panel A (Strict sample)</i>		<i>Panel B (Full sample)</i>	
		\leq Median	> Median	\leq Median	> Median
		(1)	(2)	(3)	(4)
<i>Treat × Reform</i>		0.057 (0.051)	0.116** (0.055)	0.046* (0.025)	0.018 (0.036)
<i>Mean of the dependent variable</i>		81.272	81.306	80.960	80.536
<i>Full set of controls</i>		Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>		Yes	Yes	Yes	Yes
<i>Time fixed effects</i>		Yes	Yes	Yes	Yes
<i>Obs.</i>		279	468	621	918
<i>Within R-squared</i>		0.752	0.781	0.760	0.800

Notes: The table shows regressions where we split the sample among the median of pre-reform opening hours (7 hours), opening time (8:00 a.m.), and closing time (1:00 p.m.). Voter turnout is the dependent variable. All estimations include a full set of controls (Table 3), municipality and time fixed effects. Significance levels (standard errors clustered at the municipal level in brackets): *** 0.01, ** 0.05, * 0.10.

TABLE 6. ADDRESSING OTHER CHANNELS

Panel A (Strict sample)	Dependent variable: Voter turnout				
	Baseline	Other channel			
		Friday voting	Second election day	Lack of ballot boxes	
	(1)	(2)	(3)	(4)	(5)
<i>Treat</i> × Reform	0.081*** (0.028)	0.081*** (0.027)	0.077*** (0.028)	0.083** (0.040)	0.100*** (0.037)
<i>Share of commuters</i> × Reform		0.007 (0.059)			
<i>Share of workforce</i> × Reform			-0.021 (0.070)		
<i>Share of voters without own ballot box</i> × Reform				-0.002 (0.020)	
<i>Distance to ballot box on sec. elec. day</i> × Reform					-0.523 (0.506)
<i>Mean of the dependent variable</i>	81.294	81.294	81.294	81.294	81.294
<i>Full set of controls</i>	Yes	Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>	Yes	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	747	747	747	747	747
<i>Within R-squared</i>	0.766	0.766	0.766	0.766	0.766
Panel B (Full sample)	Dependent variable: Voter turnout				
	Baseline	Other channel			
		Friday voting	Second election day	Lack of ballot boxes	
	(1)	(2)	(3)	(4)	(5)
<i>Treat</i> × Reform	0.057*** (0.017)	0.057*** (0.017)	0.051*** (0.017)	0.055*** (0.020)	0.066*** (0.023)
<i>Share of commuters</i> × Reform		-0.002 (0.048)			
<i>Share of workforce</i> × Reform			-0.048 (0.051)		
<i>Share of voters without own ballot box</i> × Reform				0.004 (0.012)	
<i>Distance to ballot box on sec. elec. day</i> × Reform					-0.296 (0.379)
<i>Mean of the dependent variable</i>	80.707	80.707	80.707	80.707	80.707
<i>Full set of controls</i>	Yes	Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>	Yes	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	1,539	1,539	1,539	1,539	1,539
<i>Within R-squared</i>	0.782	0.782	0.782	0.782	0.782

Notes: Voter turnout is the dependent variable. All estimations include a full set of controls (Table 3), municipality and time fixed effects. Friday voting: *Treat* replaced by the ratio of commuters by electorate. Second election day: *Treat* replaced by the ratio of workforce by electorate. Lack of ballot boxes: *Treat* replaced by the share of electorate in localities without an own ballot box on the second election day. Significance levels (standard errors clustered at the municipal level in brackets): *** 0.01, ** 0.05, * 0.10.

TABLE 7. EFFECTS ON PARTY VOTE SHARES

	<i>Dependent variable: Vote share</i>									
	<i>Panel A (Strict sample)</i>					<i>Panel B (Full sample)</i>				
	<i>SPÖ</i>	<i>ÖVP</i>	<i>FPÖ</i>	<i>Greens</i>	<i>Others</i>	<i>SPÖ</i>	<i>ÖVP</i>	<i>FPÖ</i>	<i>Greens</i>	<i>Others</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
State and national elections										
<i>Treat × Reform</i>	0.032	-0.090***	0.040	0.025**	-0.006	0.064***	-0.073***	0.031*	0.001	-0.023
	(0.036)	(0.027)	(0.025)	(0.010)	(0.022)	(0.019)	(0.019)	(0.016)	(0.006)	(0.017)
<i>Mean of the dep. variable</i>	44.409	34.979	12.502	4.078	4.032	44.283	34.443	12.567	4.485	4.221
<i>Full set of controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	664	664	664	664	664	1,368	1,368	1,368	1,368	1,368
<i>Within R-squared</i>	0.757	0.634	0.858	0.371	0.820	0.743	0.653	0.847	0.332	0.754
State elections										
<i>Treat × Reform</i>	0.080*	-0.172***	0.069**	0.036***	-0.014	0.095***	-0.124***	0.048**	0.006	-0.025
	(0.043)	(0.030)	(0.030)	(0.011)	(0.020)	(0.022)	(0.022)	(0.020)	(0.007)	(0.017)
<i>Mean of the dep. variable</i>	47.818	35.632	10.007	4.105	2.438	47.936	34.824	10.084	4.517	2.64
<i>Full set of controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Municipality fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	332	332	332	332	332	684	684	684	684	684
<i>Within R-squared</i>	0.599	0.429	0.650	0.444	0.716	0.590	0.468	0.650	0.409	0.599

Notes: The vote share for the SPÖ, ÖVP, FPÖ, Greens, or all other parties is the dependent variable each. All estimations include a full set of controls (Table 3), municipality and time fixed effects. State and national elections only. Significance levels (standard errors clustered at the municipal level in brackets): *** 0.01, ** 0.05, * 0.10.

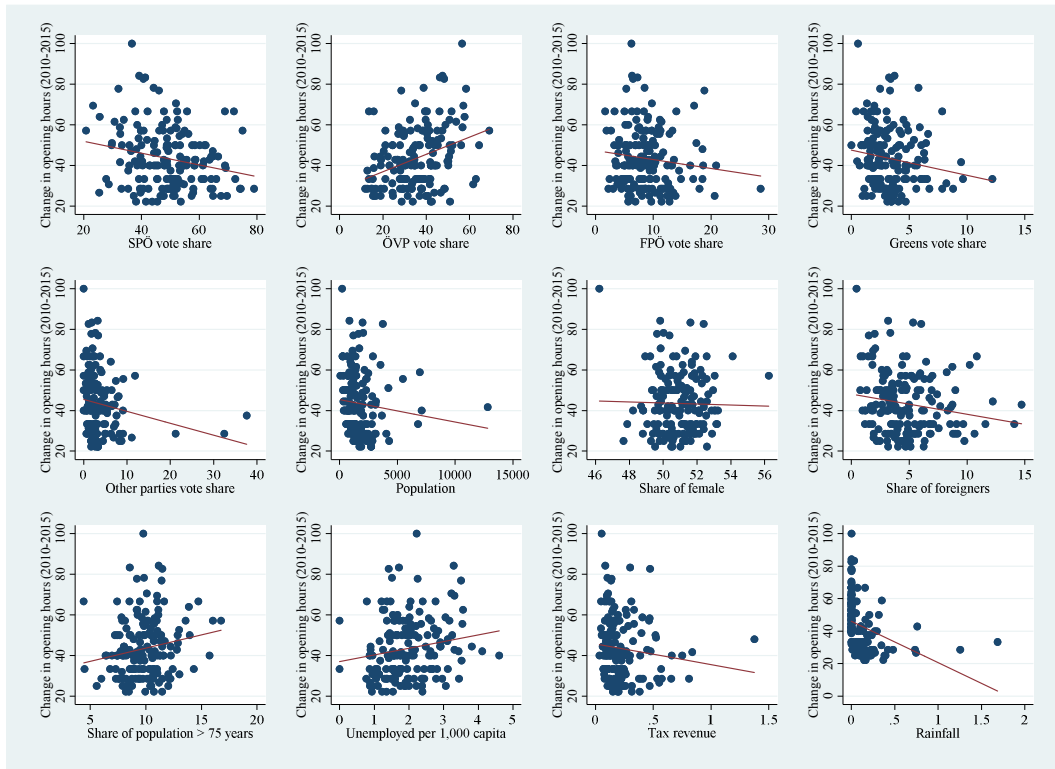
TABLE 8. SIMULATION OF STATE ELECTION IN 2010 – CALCULATION

	<i>Realized</i>					<i>Extended opening hours (simulation)</i>				
	<i>SPÖ</i>	<i>ÖVP</i>	<i>FPÖ</i>	<i>Greens</i>	<i>Liste Bgld.</i>	<i>SPÖ</i>	<i>ÖVP</i>	<i>FPÖ</i>	<i>Greens</i>	<i>Liste Bgld.</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total votes	91,185	65,411	16,970	7,835	7,559	95,514	64,968	17,576	7,999	7,639
Vote shares	48.26%	34.62%	8.98%	4.15%	4.00%	49.3%	33.5%	9.1%	4.1%	3.9%
Seats in parliament	18	13	3	1	1	19	12	4	1	0

Notes: The table shows the realized (2010 opening hours) and simulated (extended 2015 opening hours) election outcomes for the 2010 state election. We use the effects shown in Table 2 (column (8)) and Table 6 (columns (6) to (10)). In a first step, we estimate the increase of valid votes in voter turnout. We assume that valid votes increase proportionally in voter turnout. Second, we reallocate votes casted for individual parties according to estimated changes in vote shares (Table 6). More details on seat allocation procedure upon request. See also the information of the state government of Burgenland: <http://wahl.bgld.gv.at/wahlen/lt20100530.nsf/vwMandate/100009>

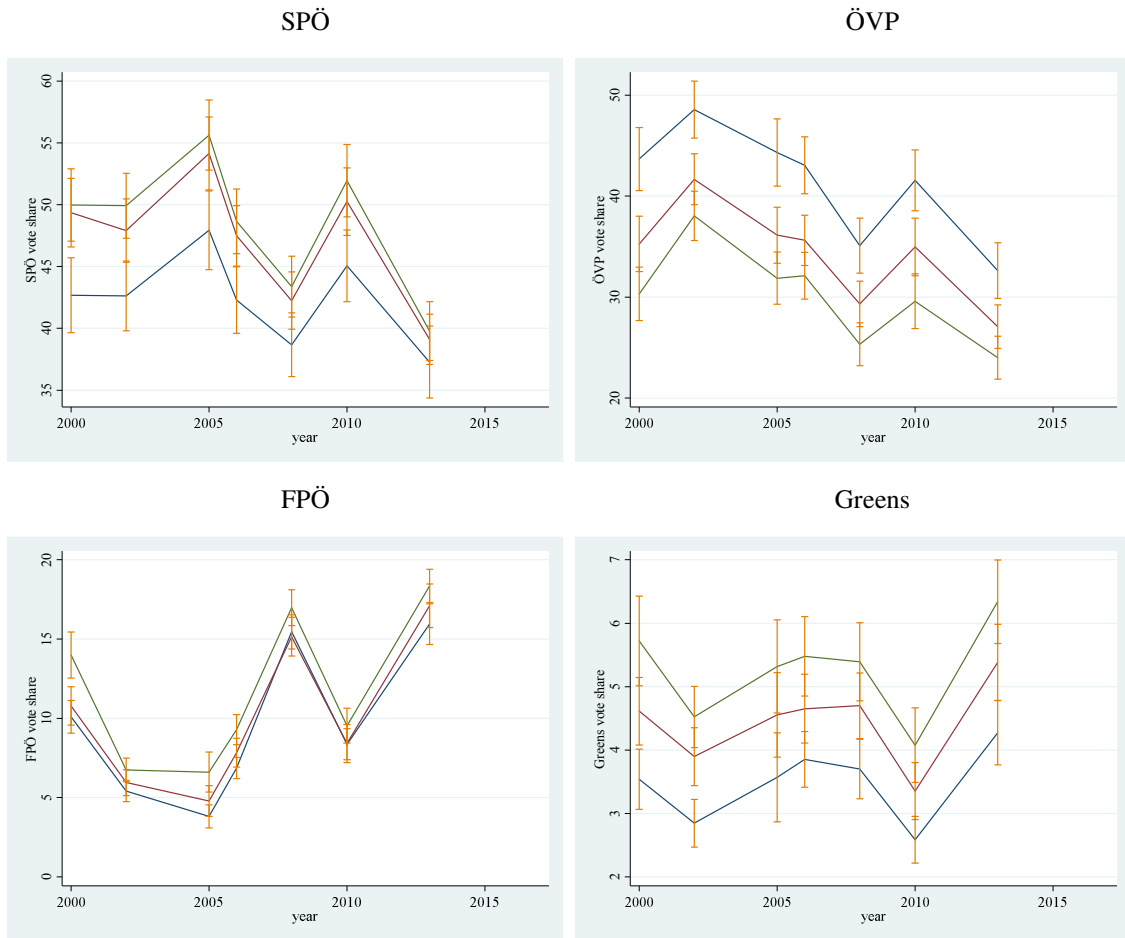
Appendix

FIGURE A.1. PRE-REFORM CHARACTERISTICS AND CHANGE IN OPENING HOURS (2010–2015)



Notes: The figures plot pre-reform characteristics (2010) against the relative change in opening hours from 2010 to 2015 (municipal level). The correlation coefficients between treatment intensity and the individual variables are: -0.22 (SPÖ vote share), 0.35 (ÖVP vote share), -0.12 (FPÖ vote share), -0.16 (Greens vote share), -0.17 (other parties vote share), -0.11 (population), -0.02 (share of females), -0.17 (share of foreigners), 0.17 (share of population >75 years), 0.17 (unemployment per 1000 capita), 0.12 (tax revenue), -0.35 (rainfall).

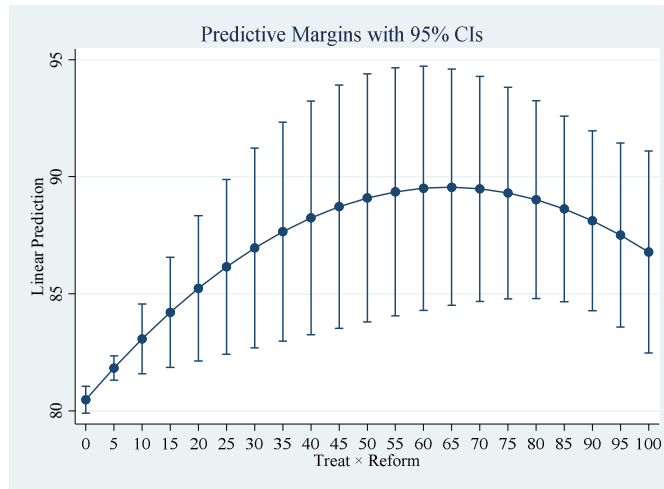
FIGURE A.2. PRE-REFORM TRENDS IN PARTY VOTE SHARES



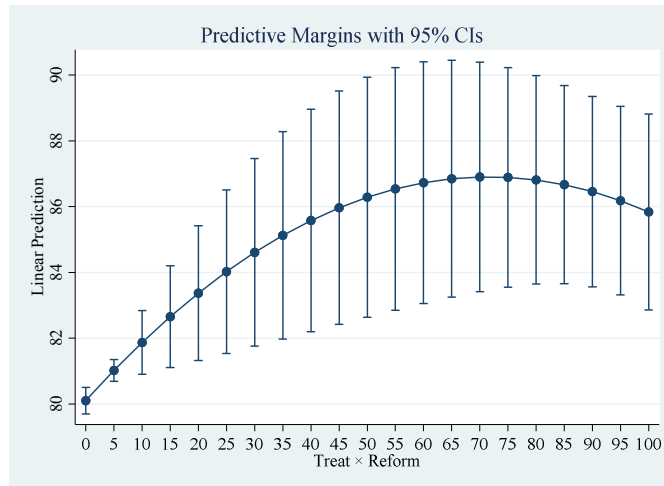
Notes: The figures show mean vote shares of the four main parties in Burgenland for the state elections in 2000, 2005, 2010 and 2015, for the national elections in 2002, 2006, 2008, 2013, and 2017. The lines describe voter turnout for the roughly lower 33 percent quantile (< 5 hours, blue line), center 33 percent quantile (5 to 7 hours, red line) and upper 33 percent quantile (≥ 7 hours, green line) in terms of pre-reform opening hours (state election 2010).

FIGURE A.3. MARGINAL EFFECTS FOR NON-LINEAR TREATMENT EFFECT

Panel A



Panel B



Notes: The figures plot the predictive margins for the non-linear (quadratic) specified treatment effect (see Table 4, column 2). The maximum is reached at a treatment intensity of around 60 to 70 which corresponds with the 95th percentile of the distribution of the explanatory variable.

TABLE A.1. DATA SOURCES AND DEFINITIONS

<i>Variable</i>	<i>Source</i>	<i>Comments/Definition</i>
<i>Voter turnout</i>	State government of Burgenland, Federal government of Austria	Without turnout from postal voting (added separately in robustness tests, postal voting data unavailable for 2015). Election dates (N: national election, S: state election): 03.12.2000 (S), 24.11.2002 (N), 09.10.2005 (S), 01.10.2006 (N), 28.09.2008 (N), 30.05.2010 (S), 29.09.2013 (N), 22.05./31.05.2015 (S), 15.10.2017 (N).
<i>Opening hours of polling stations</i>	District governments of Burgenland	–
<i>Population</i>	Federal Statistical Office of Austria	2000: Figures from 2001 census.
<i>Share of female</i>	Federal Statistical Office of Austria	2000: Figures from 2001 census.
<i>Share of foreigners</i>	Federal Statistical Office of Austria	2000: Figures from 2001 census.
<i>Share of population > 75 years</i>	Federal Statistical Office of Austria	2000: Figures from 2001 census.
<i>Unemployed per 1,000 capita</i>	Unemployment Agency of Austria	Last month/quarter before election.
<i>Tax revenue</i>	Federal Statistical Office of Austria	Total municipal tax revenue per capita. 2017: Figures from 2015.
<i>Rainfall</i>	Hydrological Office of Burgenland	Average rainfall in a municipality in milliliter (liter per square meter) per opening hour. Technically, we compute the average hourly rainfall during the municipal-specific opening hours of polling stations on election day. We use the three weather measuring points in Burgenland nearest to the center of a municipality, weighted by their inverse distance.
<i>Share of commuters</i>	Federal Statistical Office of Austria	2015: Figures from 2013. Municipal workforce commuting to other municipalities (<i>Erwerbsspendler</i>) as a share of total population.
<i>Share of workforce</i>	Federal Statistical Office of Austria	2015: Figures from 2013. Total municipal workforce as a share of total population.
<i>Share of voters without own ballot box</i>	Federal Statistical Office of Austria	Share of municipal electorate living in localities without an own ballot box at the second election day in 2015
<i>Distance to ballot box on sec. elec. day</i>	Federal Statistical Office of Austria, own computation	Average distance to the next locality with polling station on the second election day in 2015 in km
<i>Party vote shares</i>	State government of Burgenland, Federal government of Austria	Without votes from postal voting. For election dates see first row.

Notes: The table shows the data sources of this study.

TABLE A.2. ROBUSTNESS TESTS FOR EFFECTS ON VOTE SHARES

	<i>Dependent variable: Vote share</i>									
	<i>Panel A (Strict sample)</i>					<i>Panel B (Full sample)</i>				
	<i>SPÖ</i>	<i>ÖVP</i>	<i>FPÖ</i>	<i>Greens</i>	<i>Others</i>	<i>SPÖ</i>	<i>ÖVP</i>	<i>FPÖ</i>	<i>Greens</i>	<i>Others</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>No further controls</i>										
<i>Treat × Reform</i>	0.030	-0.087***	0.040	0.025**	-0.009	0.064***	-0.071***	0.033**	0.002	-0.027
	(0.038)	(0.029)	(0.026)	(0.010)	(0.023)	(0.020)	(0.019)	(0.016)	(0.006)	(0.017)
<i>Mean of the dep. variable</i>	44.409	34.979	12.502	4.078	4.032	44.283	34.443	12.567	4.485	4.221
<i>Full set of controls</i>	No	No	No	No	No	No	No	No	No	No
<i>Municipality fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	664	664	664	664	664	1,368	1,368	1,368	1,368	1,368
<i>Within R-squared</i>	0.744	0.631	0.853	0.365	0.815	0.740	0.649	0.845	0.327	0.744
<i>One locality only</i>										
<i>Treat × Reform</i>	0.093	-0.066	0.029	-0.002	-0.056	0.084***	-0.055**	0.020	-0.007	-0.041*
	(0.064)	(0.066)	(0.064)	(0.018)	(0.043)	(0.028)	(0.028)	(0.021)	(0.009)	(0.022)
<i>Mean of the dep. variable</i>	46.369	32.962	12.601	4.053	4.015	46.326	32.354	12.586	4.494	4.241
<i>Full set of controls</i>	No	No	No	No	No	No	No	No	No	No
<i>Municipality fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	448	448	448	448	448	896	896	896	896	896
<i>Within R-squared</i>	0.784	0.605	0.845	0.393	0.811	0.756	0.609	0.828	0.318	0.710
<i>High treatment intensity</i>										
<i>Treat × Reform</i>	0.048	-0.151***	0.058*	0.027**	0.018	0.079***	-0.101***	0.038*	-0.007	-0.009
	(0.054)	(0.039)	(0.030)	(0.012)	(0.023)	(0.030)	(0.029)	(0.021)	(0.009)	(0.015)
<i>Mean of the dep. variable</i>	43.372	36.798	11.952	3.951	3.926	43.040	36.968	12.016	4.050	3.926
<i>Full set of controls</i>	No	No	No	No	No	No	No	No	No	No
<i>Municipality fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Time fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	472	472	472	472	472	888	888	888	888	888
<i>Within R-squared</i>	0.724	0.646	0.871	0.375	0.844	0.708	0.679	0.868	0.320	0.841

Notes: The vote share for the SPÖ, ÖVP, FPÖ, Greens, or all other parties is the dependent variable each. All estimations except the setting “No further controls” include a full set of controls (Table 3), municipality and time fixed effects. State and national elections only. Significance levels (standard errors clustered at the municipal level in brackets): *** 0.01, ** 0.05, * 0.10.

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