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Information Cues and Retrospective Voting in the Case of School Closures in Sweden

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Abstract

While research provides evidence that voters' consider governments' past performance, little is known about which information voters pay attention to. We suggest two competing theories of retrospective voting: Outcome-oriented voters only react to the policy outcome, whereas position-oriented voters consider the initial proposal as informative of the incumbent's policy position and punish them for the unpopular idea. We test these opposing mechanisms using the case of widely unpopular school closures and originally compiled granular data on Swedish local elections results from 2002 to 2018. We exploit within municipality variation in voting across time to causally estimate the consequences for incumbents in the neighborhood surrounding the schools. Our results confirm that voters punish incumbents for closing a school but also for withdrawing the proposal: they vote position-oriented. Our findings have implications for the understanding of retrospective voting and which information cues voters look back to.

Introduction

When casting their vote, voters take into consideration the incumbent's policies since the last election—they vote 'retrospectively'. But do they care about the outcomes those policies led to or do they care about what the policy choices revealed about the government that made them? That is a question political scientists have had a hard time answering. In this paper, we present unique empirical evidence on education policies in Swedish local governments that allows us to distinguish between policy outcomes and policy choices.

Our results provide new insights to a long-standing debate regarding which information ques are important for retrospective voting. Despite the growing body of empirical research showing that voters take into account previously gained information (e.g. Berry and Howell, 2007; Golden and Min, 2013; Healy and Malhotra, 2013) during elections, we know surprisingly little about which information voters consider. Most models of retrospective voting deem only the policy outcome importance. By and large the critique by Fiorina is still applicable today: "In essence, such a model [of retrospective voting] presumes that the citizen looks at results rather than the policies and events which produce them." (Fiorina, 1978, 430). Current empirical works on retrospective voting rarely distinguish between events and results of a policy-making process but rather focus on the electoral effect of policy outputs (Adiguzel et al., 2022; Burnett and Kogan, 2016; Larsen et al., 2019; Kogan, 2020).

By distinguishing between policy choice during the policy-making process and eventual policy result, this paper provides a novel empirical test of two types of retrospective voters. Using granular data covering 16 years of policy-making in Sweden, we distinguish between initial policy proposals

by local governments and eventual policy implementation. This allows us to pit two types of retrospective voters against each other. We reason that outcome-oriented voters consider the eventual outcome of a policy, whereas position-oriented voters evaluate gained information on an incumbent's policy position, regardless of the outcome. We find substantial evidence for position-oriented voting.

We empirically investigate the electoral consequences of proposing and then implementing or withdrawing a policy in the case of widely unpopular school closures across Swedish municipalities. Sweden has witnessed a wave of school closures. Since the 1990s, over one thousand schools have been proposed to be closed (Uba, 2020). In most cases, a municipality's proposal to close a school is met with community efforts, such as local protests and petitions, to keep the school open (Uba, 2016a; Taghizadeh, 2015). At times, citizens succeed in their goal and prevent school closure: Politicians withdraw the initial proposal and agree to keep the school open. Yet, does this policy withdrawal alleviate the negative repercussions of proposing an unpopular policy? Or do voters punish the initial proposal, regardless of whether a school remains open?

To test these questions, we exploit geographical and temporal variation in school closure proposals from 2002 to 2018 across the 6000 electoral precincts in Sweden. The granular level of analysis and panel structure of the data enable us to account for variation between municipalities, common shocks to all precincts within a municipality, and time-invariant differences between precincts. We draw on an originally compiled data set of voting outcomes in Sweden at the level of precincts. We match our voting data with geo-located schools and fine grained information concerning the policy-making process reaching from proposal to actual school closure gathered by Uba (2016b) and

Folke et al. (2021).

To estimate the casual effect of disclosed policy position and policy outcome on electoral support for the incumbent, we rely on a parallel trends assumption between the affected precinct and rest of the municipality. Pretrend tests and the circumstance that our estimates are likely to be conservative in case of spill-over effects give confidence to our results. Moreover, we account for precinct invariant differences and the municipal voting trend.

Estimates suggest that in the precinct with a school that was proposed to be closed, incumbent parties lose on average 1 percentage point in vote share if they close the school as well as withdraw the proposal to close the school. This finding is suggestive for position-oriented voting at the local level and robust to a series of robustness checks. The effect sizes are substantial for incumbent parties at the local level in Sweden and likely to represent the lower bound of the true effect size, given potential spill-overs to surrounding precincts that similarly punish incumbents for unpopular policy proposals

We proceed by outlining our theoretical expectations for the two types of retrospective voting before introducing the case of school closures in Sweden. We then describe data and empirical strategy used to estimate our difference-in-differences approach. After presenting the main results, we provide several robustness tests strengthening our confidence in the results. Lastly, we discuss implications of our findings for future research.

Two types of retrospective voters

We propose two types of retrospective voting that emerge dependent on which information cue during the policy-making process voters take into account. Both lines of reasoning build on a long tradition of retrospective voting the-

ories. The common assumption is that rational voters base their electoral choice on the little information they have at hand — previous experiences of government activity and performance (see Downs, 1957, 45). To choose an incumbent during an election, voters compare anticipated performances of different candidates (or parties) to select the candidate from which they expect to gain the most benefits (see further Key, 1966, 2). [1]

Our theoretical intuition concerning two types of retrospective voters relates to work by Fearon (1999), who distinguishes between information gained from the policy process or the policy result. Either, voters reward a consistent and principled policy process, or a responsive and popular outcome (Fearon, 1999, 56). We adopt the distinction between policy process and policy outcome as two information cues, but deviate from Fearon's model by adding that incumbents reveal a policy position during the policy-making process.

We argue that when looking back at a policy-making process, voters gain two sets of information. On the one side, the policy proposal indicates an incumbents' position towards the respective policy. On the other side, the policy outcome (school closure or policy withdrawal) shows which policy result the incumbent government produced during its term. In the following, we outline two mechanisms with contrasting implications for incumbents' electoral support, depending on whether voters consider the incumbent's policy position that is disclosed when making a proposal or the incumbent's (un-)responsiveness that produced the actual policy outcome.

[1] Retrospective voting is closely related to prospective voting (e.g. Elinder et al., 2015), to the extent that Healy and Malhotra (2013) argue that both models can be collapsed as they essentially assume the presence of rational voters. We adopt this understanding of retrospective voting as rational voting in the remainder of the paper.

Position-oriented voting

Voters that mostly consider politicians' policy positions (position-oriented voting), will result in punishing the initial proposal to close a school, regardless of the eventual policy outcome. The reason is that proposing a policy reveals information on the incumbent's policy position to voters (see Ashworth, 2012). A proposal is a concrete first step during the policy-making process that goes beyond the mere promise of a policy. It shows which kind of policy the incumbent is willing to implement and thereby signals that similarly unpopular policies are likely to be suggested during the next election term.

Voters have several reasons to mostly take into account the incumbent's positional information, despite the eventual policy outcome. Even if a school remains open and the proposal to close the school was withdrawn, voters have little guarantee that the outcome will be different for the next proposal. And since the school closure was proposed in this specific precinct, this policy step could also reflect the governments' overall lack of effort for this neighborhood (Folke et al., 2021). The beneficial outcome of a school that remains open was achieved by participating in collective action, protesting and bringing public opinion to the government's attention (Taghizadeh, 2015; Uba, 2016a). These activities are however costly efforts that citizens likely want to avoid for upcoming policy-making processes. Moreover, an unpopular policy proposal suggests to citizens that their public opinion was considered only to limited extent during the proposal stage. It seems that the planning process shared between politicians and the municipality's bureaucracy did not involve a thorough consultation of citizens' opinion. In case it did, public opinion seems to have been miscalculated or ignored. This again, adds to the perception that the local government values the neighborhood and its citizens less than

other parts of the municipality.

Thus, to avoid similar policy struggles in the future and punish the incumbent for their unpopular idea, position-oriented voters are likely to consider the first policy proposal over the later outcome of the policy process.

Following this line of reasoning, a responsive policy withdrawal does not alleviate the negative effect of the initial unpopular proposal that discloses the incumbent's policy position. We formulate the following hypothesis:

H1: If voters are position-oriented, incumbents lose votes if they propose an unpopular policy, even if the policy is not implemented.

Outcome-oriented voting

Outcome-oriented voting will mostly reflect the policy's eventual outcome and lead to an electoral reward for the incumbent if the unpopular proposal was withdrawn and a school is able to remain open. In contrast to position-oriented voting, the unpopular proposal and the thereby disclosed policy position do not weigh more than the eventual outcome that citizens get.

From a voter perspective, the outcome of a school that remains opened is a result of the policy-making process that is tangible and popular. Even if the initial proposal was unpopular, the local government eventually implemented a popular decision, which is rewarded by voters (e.g. Adiguzel et al., 2022; Kogan, 2020). Additionally, the policy withdrawal means that the incumbent acted responsively to citizen demands. That citizen demands were taken into account is shown by the fact that a policy withdrawal involves several costs for the incumbent. The incumbent needs to publicly acknowledge that the proposed policy will not be implemented. In some cases this acknowledgment amounts to an apology, which can be a risky political maneuver. Further,

incumbents responded to citizen demands despite planning and budgetary costs. Anticipated savings cannot be made, which at times will require a re-organization of the municipality's budget. Moreover, the process of taking back a policy proposal signals to citizens that a similar process is possible in future policy-making when a proposal turns out to be unpopular. Citizens gain the experience that they have the means to participate at a political level and affect policy outcomes.

If voters mostly consider policy outcomes rather than politicians revealed policy position, we expect incumbents to be electorally punished if they implement an unpopular policy, but not if they withdraw this policy and prevent an unpopular policy outcome. Here, the policy outcome weighs more for an election than the unpopular proposal. Thus, in our second hypothesis we formulate the following expectation:

H2: If voters are outcome-oriented, incumbents lose votes if they implement an unpopular policy, but will not do so if the policy was withdrawn.

Research Design

To test our two contrasting empirical expectations for types of retrospective voting (position- or outcome-oriented), we analyze electoral outcomes in municipal elections (every four years) in Sweden from 2002 to 2018 at the precincts level. The variation we exploit is within municipality differences in electoral outcomes between precincts over time. To identify precincts with schools that are proposed to close, we geo-code school addresses and match them to precincts. We thereby trace the election results for precincts both before and after the proposal to close a school was made as well as after the

proposal is implemented or withdrawn. In this section, we first describe the case of school closures in Sweden, then our data and finally the empirical strategy.

The case: School closure proposals in Swedish municipalities

The policy-making process of school closures in Sweden offers an interesting case to study which informational cue from a policy-making process voters take into account. The highly salient issue of school closures in local elections in Sweden and level of contestation that creates variation in whether the policy is implemented or withdrawn, make them a suitable case to study electoral responses to the process of school closures in Sweden.

Whether a school is closed is decided at the lowest administrative unit, which is the municipal level in Sweden. The 290 Swedish municipalities have the organizational and financial responsibility for the educational system. They have extensive autonomy from the central government, to the extent that local self-government is protected in the constitution (Lidström, 2010; Ladner et al., 2016). Municipal incumbency is reflected by who sits in the municipal council, the main political decision-making body in a municipality. Members of the council are elected for four-years on the same day as national elections. After an election, usually a majority coalition is formed and the leading coalition party appoints the chairperson of the executive board that has the overarching responsibility for all municipal activities (Lidström, 2010). This chairperson represents the leading politician in a municipality,

similar to the position of a mayor in other countries[2].

The process to close a school is set in motion by members of the council who request a proposal for the closure of a school from the municipal bureaucracy (Uba, 2016a). While a school closure is a cost-saving measure for the municipality, it is costly for people living in the surrounding, which makes it a public bad (Folke et al., 2021). The proposal is discussed by the municipal committee for educational issues. At this point, the proposal becomes public, which in many cases leads to protest or contestation. At times, this contestation results in a policy withdrawal and the school is kept open. In the remaining cases, the school is eventually closed.

School closures are highly unpopular but mostly affect citizens living in proximity to the closing school. Parents lose an essential public infrastructure for their children. Relocating a child to a new school often implies that daily commuting times increase, as the new school is likely situated farther away. Additionally, a change in environment can create stress for the family. Property owners face a decrease in value of the living area and surrounding residents experience changes in who passes by the area and how safe the environment feels. Even politicians are found to avoid school closure in their own precinct, indicating awareness of the drawbacks of school closures (Folke et al., 2021).

The high voter turnout in local elections (84.1 % in 2018) reflect the considerable influence (and possible drawbacks) political decisions made at the municipal level have on citizens' lives. These local elections are polled

[2]Contrary to a mayor in mid-European countries, the chairperson of the executive board has no personal decision making power, instead all political decisions are made by the council.

at the level of precincts[3] within a municipality. Each precinct contains 1000 to 2000 eligible voters that go to the same poll and are therefore the most fine-grained level at which election results are published[4]. Following Folke et al. (2021), we argue that precincts are the most suitable level of analysis to capture local voting within a neighborhood. Each municipality consists of, on average, 20 precincts[5], adding to around 6000 precincts across Sweden.

Data

We first describe our data compilation for electoral results at the precinct level over time, to then introduce the data concerning the school closure policy-making process, as well as the composition of municipal assemblies in Sweden.

Electoral outcomes in Swedish precincts

To follow local electoral support for parties over time, we match precincts from different election years based on the geographical areas they cover. This allows us to follow the same area and its voting outcomes over time. Data on election results for all municipal elections was provided by The Swedish Election Authority, along with geodata that includes the geographical location

[3]Electoral districts or *valdistrikt* in Swedish.

[4]During the 2018 election the mean number of voters in a precinct was 1309. For smaller islands and other remote locations a few precincts exist that only include a couple hundred voters. However, for over 97% of the precincts, the number of voters is between 500 and 2000.

[5]The variation however is large. The median number of precincts per municipality in 2018 was 10 and in 30% of all municipalities the number of precincts was 6 or fewer.

of every precinct[6].

Scholars have used Swedish precincts as the level of analysis to study changes in local opinions between elections before (Lindgren and Vernby, 2016). However, Lindgren and Vernby (2016) only match precincts based on their identity codes used by the Swedish Election Authority across only three election years (2002, 2006, 2010). As they correctly note in their article, identity codes can change when there is no change in precinct borders and sometimes remain the same despite a change of borders. Therefore, using geographical information to match precincts over time leads to a more accurate result when analyzing local election outcomes.

In the main analysis, we consider precincts from two consecutive elections to be comparable if they have at least a geographical overlap of 90%[7]. Using this method we allow for minor changes to borders of a precinct from one election to the next, since differences often result from the quality of geodata files across years or minor changes. Following this method, about 80% of all precincts match to a similar precinct in the previous election and 31% of all precincts that exist in 2018 can be observed across all five elections between 2002-2018. In the main analysis, we only include schools proposed to close if they are located in a precinct that has remained unchanged for at least three

[6]The geodata for precincts in 2002 was not published by The Swedish Election Authority and was instead obtained trough Statistic Sweden.

[7]Specifically, we first match each precinct from an election with the closest precinct from the previous election based on the positions of their centroid points. Then, we calculate the area covered by either or both of the two precincts, i.e. the union area, and the area only covered by both precincts, i.e. the intersecting area. If the size of the intersecting area is at least equal to 90% of the union area they are considered comparable.

elections but also run the analysis using other samples as robustness checks (see Table A1 in Appendix A)[8].

The outcome variable is the difference in vote shares for the party in power when the proposal of school closure was made in the precinct and the rest of the municipality, expressed in percentage points[9]. In other words, the outcome variable measures how the election results in the affected precinct deviates from the rest of the municipality. The main idea of our approach is to see how this deviation changes after the proposal and the decision to either close the school or withdraw the proposal, compared to before the proposal was made.

Using our definition of the outcome variable has a few advantages. First, variation in the outcome cannot arise from common shocks that affect the entire municipality equally. Second, by subtracting the aggregated vote share from all other precincts in a municipality we can follow the same areas over

[8]In the main estimation sample a affected precinct is on average observed for 4.2 out of the 5 elections.

[9]When calculating the vote shares in the rest of the municipality we exclude votes by mail and votes made in advance that are counted after the election day, as it is not possible to identify the place of residents of these voters.

time, even if the borders between unaffected precincts change[10].

School closure policy process

Data on school closure proposals and implementation is matched to the election data based on the year of the policy proposal and the address of the school[11]. The data covering the policy-making process of school closures were generously shared by Uba (2016a, 2020) for the period 1990 to 2009 and by Folke et al. (2021) who extended the original data set by Uba to

[10]An alternative approach could be to use a difference-in-differences estimator and include all precincts (affected and unaffected) individually in the analysis. However, since the borders of precincts change sometimes between elections it would result in a lot of missing data that could lead to a highly unrepresentative sample. Instead, the difference-in-differences results are presented as a supplementary analysis in Table B1 in the Appendix B. Despite our theoretical concern regarding this alternative approach, all results are substantially the same.

[11]The addresses are retrieved from the Swedish school register maintained by the Swedish National Agency for Education. For the proposals coded by Uba (2016a) we have matched the proposal to schools in the register from the same year based on the name of the school and the municipality. This approach left 133 (13 %) of the schools that we were unable to match. The proposals originating from Folke et al. (2021) had already been geo-coded.

2018[12]. We exclude cases of schools that were proposed to close if the school is located in the same precinct that already had an affected school in a previous election cycle. However, we merge two school cases if two schools were proposed to be closed during the same election cycle and either closed during that election cycle or if both remained open.[13].

We measure whether a school remains open and the policy was withdrawn as the absence of school closure. After a proposal, in a majority of cases the decision to close a school is made within two years of the initial proposal. For a school that is indicated to remain open (thus will not be closed) until the end of the data collection period, we assume that it is evident that the school remains open or has a high chance of staying open by the end of the election cycle. This is arguably a reasonable assumption as elections occur every four years. The biggest threat to our estimation would be if the proposal is made before an election and a reversal happens after the following election, in response to the election result. This could either happen if the same party remains incumbent or if there is an incumbent turnover. To address these concerns we re-run our main analysis only using cases where there has been no turnover since the proposal was made (see Table A3 in Appendix A) and

[12]In their data the year of the initial proposal and year decision to close to school is coded. For some schools coded by Folke et al. (2021), we only have the year of when the school closure was implemented and not the year when the decision to close the school was made. In those cases we use implementation year instead of decision year.

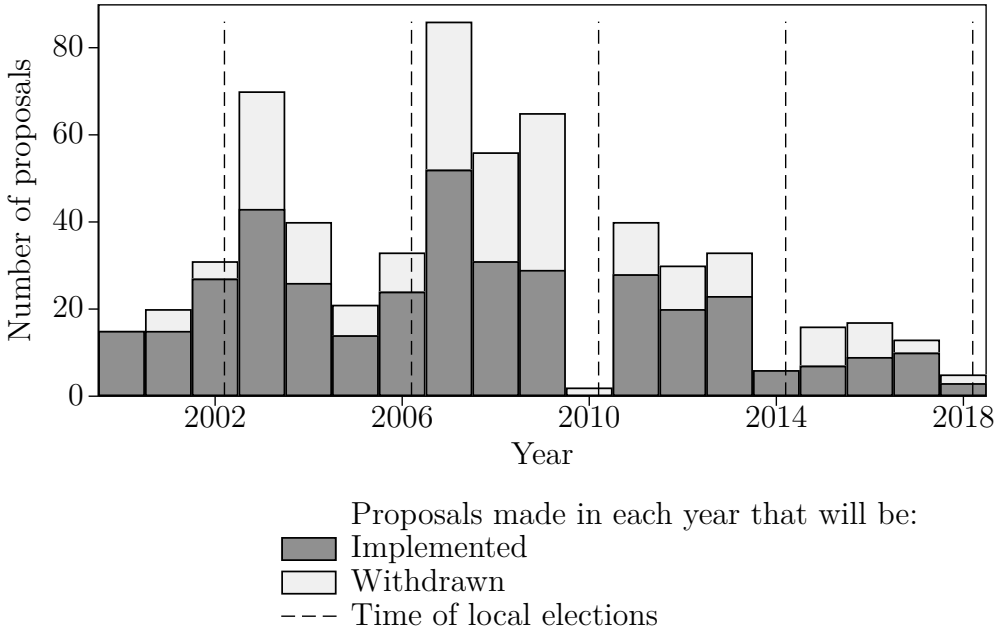
[13]There are 32 cases of precincts that contain multiple school closure proposals during the same election cycle in our main estimation sample. In a robustness check (Table A5 in Appendix A) we re-estimate our main specification without these 32 cases and obtain almost identical coefficients.

when excluding all proposals made during an election year (see Table A4 in Appendix A).

The final main estimation sample consists of 599 schools that have been proposed to be closed. Out of these, 382 schools or 63% were eventually closed while the rest remained open until the end of the data collection period. The average time between proposal and decision to close a school is 1.73 years and for 106 of the closed schools an election was held between the proposal and the final decision to close the school. Figure 1 depicts the distribution of school closure proposals across the years in our main estimation sample. The y-axis depicts the number of proposals per year of which some will be eventually implemented (dark gray) or withdrawn (light gray). Interestingly, the graph suggests that local governments tend to propose school closures the year after an election and refrain from making proposals during election years (dashed line). Overall, Figure 1 shows a steady pattern of proposals to close schools, implemented school closures and proposal withdrawals.

Beside temporal variation, there is also a substantial variation in the spatial distribution of school closure proposals. Out of the 290 municipalities across Sweden, 213 are included in our main estimation sample. In Figure 2 we present this spatial distribution by shading the precincts across Sweden that have experienced at least one school closure proposal in our main estimation sample. The thicker dark line indicates the borders of municipalities in Sweden. Naturally, there are more proposals in more densely populated areas where the sizes of the precincts tend to be smaller. However, the map shows that school closure proposals are common across Sweden.

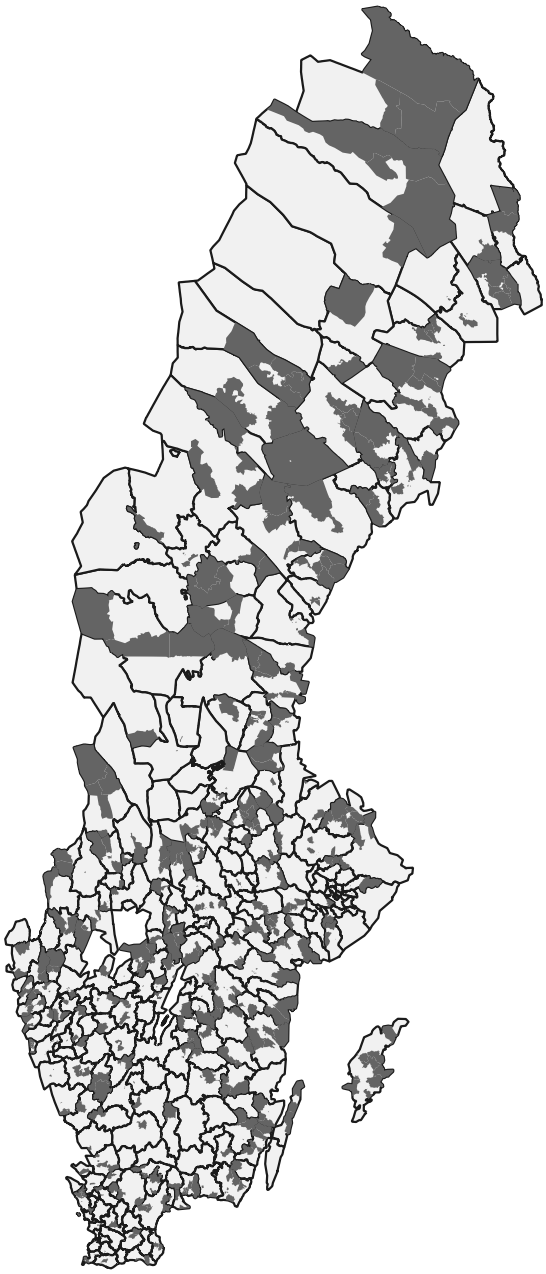
Figure 1: Distribution of made proposals across the time frame of our estimation sample.



Incumbent party in municipal assemblies

The party affiliation of the chairperson in a municipality is used to determine the incumbent party for all years and in all municipalities. To identify incumbent parties in each municipality, we use a data set compiled by Broms (2022). In our estimation sample, the Social Democrats is the most common party to hold the position of the chairperson. In 62% of the cases they are incumbent when a school closure proposal is made. The Moderate party is coded as the incumbent party in 24% of the cases and the Center party in

Figure 2: Spatial distribution of school closure proposals in our main estimation sample.



Notes: Shaded areas represent precincts that have experienced at least one school closure proposal in our main estimation sample. The lines show the municipal boundaries in Sweden.

11%.[14]

Empirical strategy

In the analysis, we exploit variation in the outcome variable over time in precincts where a school was proposed to be closed. Of course, neither location of the affected schools, nor timing of the proposals are random. Therefore, we rely on the identifying assumption that the vote share for the incumbent party in precincts affected by the school closure proposals would have followed the same trend as the rest of the municipality, in absence of the proposal. An example of a violation to this assumption would be if the decision to propose a school closure is influenced by longer trends, such as urbanization. If these trends also affect local electoral outcomes, the estimated coefficients in our regressions would be biased.

It is not possible to directly test this assumption therefore we run several additional checks. First, we follow convention and run a pre-treatment analysis to see if there is a trend in our outcome variable before the proposal is made. Table 1 shows the estimate from an event-study regression (Clarke and Tapia-Schythe, 2021), where the first election following the school closure proposal is defined as period 0 and the election before the proposal (period -1) is used as the baseline. The estimate shows that none of the estimated coefficients for the negative time periods are statistically significant, whereas after the proposal they are all negative and statistically significant at the 5 percent level or below. These results point in the direction that the estimated effects are not mainly driven by trends in the outcome variables that already

[14]In 97% of the cases the chairperson belongs to one of these three parties. The Liberals, the Christian Democrats and the Green Party are represented in 14, 3 and 1 of the cases respectively.

existed before the proposal was made. Second, to further see if results are robust to violations of the identifying assumption, we re-run our main specification using precinct-specific linear and quadratic time trends. Table B2 in Appendix B shows only slight changes in the estimates and results remain highly comparable[15].

Table 1: Event study, before and after proposal

	(1)
Periods $\leq$ -3	0.565
	(0.431)
Period=-2	0.339
	(0.252)
Period=0	-0.984***
	(0.235)
Period=1	-0.568**
	(0.267)
Periods $\geq$ 2	-0.634**
	(0.314)
Precinct FE	YES
# of precincts	599
# of observations	2541

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Time period 0 refer to the first election after a proposal is made and the election at time period -1 is used as baseline. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Another threat to identification relates to spill-over effects: Our estimates could be biased if voters living outside the affected precinct also react to the proposal. In case they react in the same way as voters within the affected precincts, our estimates would be conservative compared to the true effect

[15]As the inclusion of unit-specific time trends often can lead over-control in difference-in-differences models they are not included on our preferred estimation (Goodman-Bacon, 2021).

and biased towards zero. Thus, we would underestimate the effect of school closure or policy withdrawal.

Relatedly, school closure proposals that were not included in the analysis could affect our results. Some affected schools were excluded as they were located in precincts of which the borders have frequently changed. Although these proposals were excluded, election results from these precincts are still used when we subtract the vote share in the rest of the municipality from the vote share in the treated precincts. However, a single precinct in a municipality is unlikely to affect the average vote to large extent. We further conduct a test and estimate a standard difference-in-differences approach, where precincts are included separately. This yields similar results to our main estimation even though we exclude precincts with changing boarders altogether (see Table B1 in Appendix B).

Finally, a last threat to consider is changing voter composition in affected precincts over time. If the group of voters living in a precinct are different from one election to the next, we could falsely interpret the effect of a change in the precinct's voter group as an effect of the school closure policy process. Due to lack of data we cannot directly observe the number of voters moving in and out of precincts between elections. Instead, we try to address this potential problem in robustness check A7 (Appendix A) where we exclude all precincts that have experienced either an increase or decrease by 10 percent or more in the number of eligible voters between two consecutive elections. The main results hold even when the sample is restricted in this way.

Analysis

We first regress the outcome variable on a single indicator that takes the value 1 if the school closure proposal has been made and 0 otherwise, including precinct fixed effects. This estimation gives us the average effect on voting for the incumbent party following a school closure proposal, regardless of the actual policy outcome. However, as we are interested in the reaction of voters when the proposal is either decided to be implemented or withdrawn, we additionally run a similar regression that includes three separate binary indicators for proposal, closure or withdrawal. In this specification, the first indicator takes the value 1 if the proposal has been made, but not yet the final decision. The second indicator takes the value 1 if the decision to close to school has been taken and finally, the third one takes the value 1 when there has been a withdrawal of the initial proposal. This gives us three coefficients of interest that each represent the average estimated effect of voting for the incumbent party at the time of the proposal in the affected precinct.

We include precinct fixed effects in all our regressions to account for time-invariant factors that explain differences in voting between affected precincts and the rest of the municipality. Further, as our outcome variable measures the deviation in election results from the rest of the municipality, any time-varying but common shocks within municipalities are accounted for in the analysis. Finally, we cluster the standard errors at the precinct level throughout to account for the panel structure in the data.

In these specifications the coefficients for either the decision to close a school or withdrawal of the proposal represent the average effect across all observed elections following the decision. Moreover, the estimated effect of withdrawing a proposal should be interpreted as the net effect of both proposing *and* withdrawing the proposal. Thus, incumbents may still have benefited

from withdrawing a proposal compared to if they would have implemented the decision even if we estimate a negative coefficient. However, in this paper we are interested in the question if the total effect of first proposing an unpopular proposal and then withdrawing it is negative or not.

Table 2 presents the main results. Column 1 shows the result when a single indicator is used for all elections after the proposal and column 2 when three different indicators are used, depending on the stage of the policy process (proposal, decision to close or withdrawal). From column 1 it is clear that a party loses votes in precincts where they propose to close a school. On average, the incumbent party loses 0.9 percentage points of their votes in the affected precinct, when accounting for voting in the rest of the municipality and including precinct fixed effects. Note that the coefficient is based on the average across all future elections following the proposal that we observe and not just the initial reactions[16].

Next, we turn to column 2 where the overall effect is separated into the different stages of the policy process at each election. Here, we expected retrospective voters (thus, both position and outcome-oriented voters) to electorally punish school closure and only position-oriented voters to also punish a policy withdrawal (H1), whereas outcome-oriented voters refrain from punishing the incumbent in case of policy withdrawal and the outcome of an open school (H2).

We include an indicator for cases where there is an election between the initial proposal and the actual decision to close the school, to exclude these from the control group. Once the final decision to close the school is made, voters living near the school react negatively and punish the responsible

[16]In robustness check B3 we differentiate the effect depending on how many elections cycles have passed since the proposal was made.

party.[17] Averaged across all observed elections after the decision to close a school, the incumbent party receives 1.1 percentage points less votes in an affected precinct. To give this estimate substantive meaning; the difference between the two main political blocs (left and center-right) in Swedish politics in the 2018 local election was less then 1.1 percentage point in about 5 percent of the municipalities. In 25 percent of the municipalities the margin between the blocs was less then 5 percentage points. Therefore, we argue that the effect of school closure on voting is important and especially so in close elections.

Even in case the proposal is withdrawn and a school remains open, incumbents lose on average 0.8 percentage points of votes. The estimated coefficients for deciding to close a school and proposal withdrawal are not statistically different from each other[18]. However, as politicians might strategically decide which proposals to withdraw based on the response from the public, we cannot draw causal conclusions from comparing the two coefficients. Instead, the main take-away from these results is that, regardless of the policy outcome (closed or open school), incumbent parties lose electoral support once they publicly propose to close a school.

Since Table 2 shows average effects across the years after a proposal is made, it is interesting to have a closer look at how effects change depending on the number of elections that have occurred since the decision to either close or withdraw a proposal. We separate the effect of deciding to close a

[17] Robustness check A2 shows that these results also hold when excluding all cases where the incumbent party changed between the proposal was first made and the decision to close was taken.

[18] A Wald test of coefficient equality for the two coefficients yield a p-value of 0.541 implying no statistically significant difference between the estimates.

Table 2: Main results

	(1)	(2)
Proposal (all outcomes)	-0.927***	
	(0.256)	
Proposal (before decision)		-0.480
		(0.423)
Decision to close		-1.094***
		(0.350)
Proposal withdrawn		-0.774**
		(0.388)
Precinct FE	YES	YES
# of precincts	599	599
# of observations	2541	2541

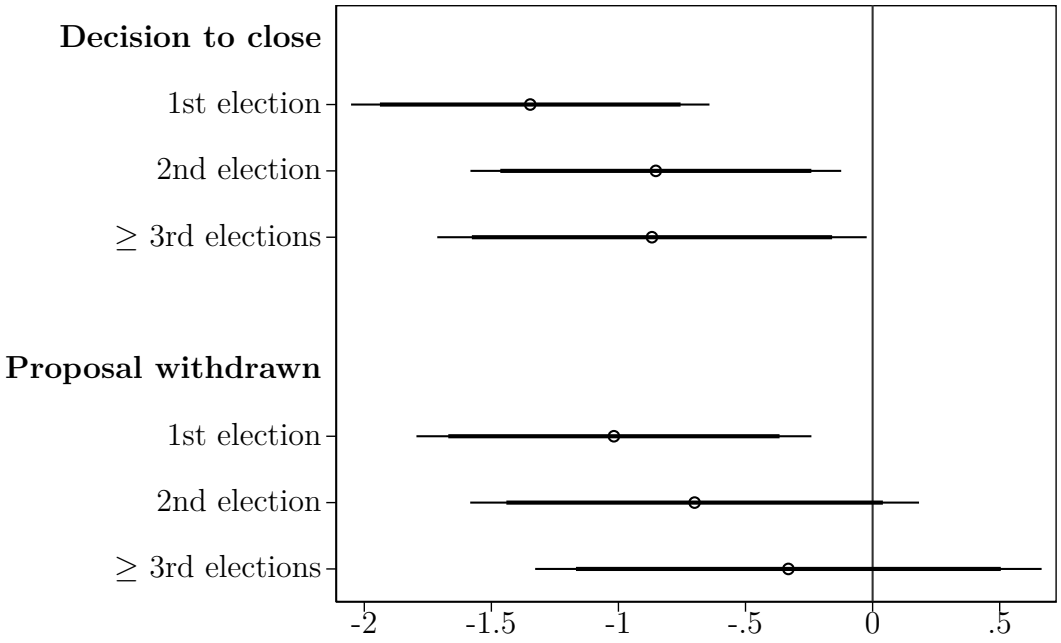
Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

school or withdrawing the proposal depending on how many elections have processed since the decision was made. In this analysis we simply run the same regression as above but include separate indicator for each election following the decision.

Figure 3 presents a coefficient plot for the estimates for decision to close and proposal withdrawal up to three elections or more (i.e. at least 12 years) after the initial proposal was made. The plot shows that the negative effect from deciding to close a school is stable over across election years. At the first election following the decision to close a school we find a decline of 1.35 percentage points in the vote share for the incumbent party. Over 60 percent of that decline is still present in the following elections and remains noticeable afterwards. Thus, deciding to close a school has long run consequences on the vote choice of individuals affected by the decision. For cases where the proposal is withdrawn, there is a clear negative response from voters during

the first election following the withdrawal. After that, uncertainty increases around the estimates but our results do not suggest any positive shifts in electoral outcome.

Figure 3: Separating the effect for post-treatment elections



Notes: Coefficient plot from a regression where the effect of deciding to close a school or withdrawing the initial proposal is separated depending on the number of elections since the initial proposal was made. Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. The inner horizontal lines represent the 90 percent confidence intervals (CIs) and the outer lines the 95 percent CIs. The full regression output is presented in Table B3 in Appendix B

Robustness tests

In Appendices A and B we present a series of tests showing that our main results are robust to alterations to our approach of data construction, the regression specification, or test for alternative explanations explaining a de-

crease in incumbent support in precincts with schools that were proposed to close.

In Appendix A we address assumptions we made during the data compilation and show that results remain highly comparable. First, we test if the results are affected by either increasing or decreasing the number of observations needed for a precinct to be included in the estimation sample (Table A1). Second, we address our assumption that the party deciding to close a school is the same party that originally proposed the policy. We run two robustness checks by excluding proposals where the incumbent party has changed between proposal and decision to close the school (Table A2). Next, since the timing of policy withdrawal is more uncertain than for school closure, we check if results hold when excluding proposals in precincts where there has been a turnover in any year after the proposal (Table A3)[19]. Third, instead of assuming that a proposal is made by the incumbent party before the election, we exclude proposals that happened during an election year(Table A4). Fourth, we run an analysis excluding precincts in which two schools were proposed to be closed during the same election cycle (Table A5). Fifth, we test if our results hold when excluding cases where the proposal had occurred before the first observation in our data for that precinct (Table A6). Finally, we test if our results are influenced by voters moving in and out of precincts over time (Table A7).

In Appendix B we re-run our analysis using a more standard difference-in-differences approach where we include all precincts that are unchanged for at least three consecutive elections (Table B1). The estimated coefficients

[19]In the second case the estimated effect of both deciding to close a school or withdraw a proposal are slightly more negative (1.4 percentage points) for the incumbent party, compared to our main result.

are very close to the ones we present in the main results even if the effect of withdrawing a proposal instead turns significant at the ten percent level (p-value=0.059). However, as we need to exclude many of the unaffected precincts due to changes in their borders over time we conclude that the estimates point in the same directions as out main results.

To alleviate concerns that our main results are driven by trends in voting that initialized in the affected areas before the proposal was made, we include precinct specific linear and quadratic time trends in Table B2. The point estimates are only slightly affected and the standard errors do increase by this inclusion, which is expected given the large number of additional covariates we include. However, the estimate on the decision to close a school remains significant at the five percent level and for withdrawal at the ten percent level, even when using the most restrictive specification.

Discussion and conclusion

By distinguishing between an initial policy proposal and the policy outcome, we find that after politicians propose to close a school, voters' not only punish the incumbent for deciding to close a school but also for withdrawing the unpopular proposal. In both cases, the incumbent party loses in the elections following a school closure proposal on average 1 percentage point of the vote share in the affected precinct. We argue that our results can be interpreted causally. We check that results are not driven by voting trends prior to the proposal or a change in the voter composition in affected precincts. Further, the results are robust when testing alterations of the parallel trends assumption between affected precincts and the rest of the municipality as well as a number of alternative regression specifications which provide support for our

findings.

Moreover, results are substantial, as voting in Swedish local elections is closely related to national and regional elections that occur on the same day. Voters tend to choose the same party in the national and local elections (Lidström, 2021), an electoral shift at the local level is rare but even more significant. Additionally, it is important to consider that the effect size is bound to the incumbent party's share in a coalition where the ruling coalition usually consists of three to four parties. For example, a loss of one percentage point for a party with 20% of the votes would imply that the party lost five percentage of its votes. This decrease in votes is likely to represent the lower bound of the true effect size given our estimation strategy. Any spillover effects to surrounding precincts (that similarly punish the unpopular policy proposal) would make our estimates conservative. Finally, election wins in Sweden are made in the margins and differences around one percentage points can make or break an election for the left or right leaning bloc.

Data compilation and estimation method in this paper offer a methodological approach to handle estimations across space and time of geographic areas that change within the study period. In particular for the study of political behavior and voting, changing borders are a common issue. Since precincts or electoral districts are redrawn frequently (for example gerrymandering in the context of the United States), observing electoral outcomes across time at these units is difficult (Lindgren and Vernby, 2016). Therefore, we hope that this paper advances the study of election outcomes across units that frequently change borders.

The results contribute to a larger debate in democratic theory concerning whether voters take into account past information (Downs, 1957; Healy and Malhotra, 2013) and if so, which information they consider(e.g. see Fearon,

1999; Fiorina, 1978). We argue that the voting pattern we observe is indicative of position-oriented voting, where voters take an initial policy proposal as cue to gain information on an incumbent's policy positions. Regardless of the policy outcome, they will punish an unpopular position. Additionally, the robust negative effect of school closure on incumbent support underlines the presence of retrospective voting in general.

By finding negative electoral consequences of public goods removal, this study in turn adds to a growing consensus that provision of public goods or allocation of resources is electorally beneficial for incumbents (Adiguzel et al., 2022; Brown and Zoorob, 2020; Burnett and Kogan, 2016; Kogan, 2020; Larsen et al., 2019). Note that we find evidence that proposing a policy of public goods removal has already negative effects for incumbents. Further research is needed if the same pattern holds for popular proposals.

Moreover, this study adds to empirical evidence showing that voters make careful electoral decisions based on attributable local conditions (Harding and Stasavage, 2014; Harding, 2015) or incumbents' responsibilities (de Kadt and Lieberman, 2020; Imai et al., 2019). An avenue for future research could be to explore reasons that issues such as closed schools get electorally punished, while other local conditions (i.e. crime rates) seem to be little considered by voters (Hopkins and Pettingill, 2018).

The studied case of policy withdrawals can further be discussed in light of responsive policy-making and research on procedural fairness during the policy-making process (Esaiasson et al., 2016b,a; Hibbing and Alford, 2004; Grimes and Esaiasson, 2014). We analyze circumstances under which a government withdraws a policy after having publicly proposed it[20]. In this case,

[20]For a discussion of policy reversal (e.g. withdrawal) as a form of responsiveness, see (Esaiasson et al., 2016a).

responsiveness implies that after a policy proposal is made, citizens raise demands towards the policy-maker that differ from the initial proposal. By being responsive to these demands, governments change or revert their policy. While our results do not indicate that withdrawing a policy proposal has on average positive repercussions for incumbents, it seems promising to have a closer look at whether the way politicians withdraw the policy, by for example propagating an inclusive and participatory policy-making, can mitigate potential negative consequences for incumbents.

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Appendix A: Robustness checks - data compilation

In this Appendix we test how robust our results are to changes in some of the decision we made when constructing the main estimation sample. All results in are estimated using the identical regression specification and variables as in the main paper.

In the main analysis we only included school closure proposals if the school was located in a precinct that we could observe for at least three elections without the border of the precinct changing. Table A1 shows the estimates when we instead only use precincts that remained unchanged between all five elections we study (Panel A) or when we include all precincts independent of the number of observations (Panel B). When only including precincts that are unchanged between all five elections we find a similar effect on voting when the school closure is decided even though the standard errors increase compared to our main results. Moreover, the estimate for proposal withdrawal increases in effect size (at a p-value below 0.05). This reinforces the conclusion made from the main analysis that incumbents lose electoral support after presenting a school closure proposal, even when not implementing this it. In panel B our results are nearly identical to the ones presented in the main paper.

To address the concerns that the party deciding to close a school might differ from the party that originally proposed the idea we run two robustness checks. First, in Table A2 we only include an affected school if the same party was incumbent during the proposal and the decision to close. Second, in Table A3 we exclude all precincts in municipalities where a change in the incumbent party occurred at any of the elections following the proposal that

we observe. Under this specification both estimates, for the decision to close a school or withdraw a proposal, are even larger in size than our main results.

Further, in the main analysis we assume that if a proposal occurs during an election year, the proposal was made before the local election was held in September. In Table A4 we instead exclude these cases and the results stay the same. Similarly, Table A5 shows only minor changes to the estimates when excluding the precincts where two schools are proposed to be closed during the same election cycle.

In the main estimation sample we include precincts that are affected by a school closure proposal during the first election period in our data. We run an estimation when only including cases that are also observed before the proposal in Table A6, showing that results are highly comparable to our main ones. Finally, we address concerns that our results may be influenced by the circumstance that voters move in and out of precincts over time. In Table A7 we present the results when excluding all precincts that ever experienced a 10% increase or decrease in eligible voters between two consecutive elections. Effect sizes stay very close to the results in the main paper but uncertainty increases around the estimate for proposal withdrawal with a p-value of 0.056.

Table A1: Different minimum number of observations per precinct

	(1)	(2)
Panel A: Only precincts unchanged between 2002-2018		
Proposal (all outcomes)	-1.018***	
	(0.332)	
Proposal (before decision)		-0.373
		(0.558)
Decision to close		-1.020**
		(0.447)
Proposal withdrawn		-1.092**
		(0.512)
Precinct FE	YES	YES
# of precincts	317	317
# of observations	1585	1585
Panel B: All precincts		
Proposal (all outcomes)	-0.849***	
	(0.227)	
Proposal (before decision)		-0.574*
		(0.346)
Decision to close		-1.005***
		(0.313)
Proposal withdrawn		-0.705**
		(0.354)
Precinct FE	YES	YES
# of precincts	860	860
# of observations	2987	2987

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Panel A only include precinct observed for all election between 2002 and 2018. Panel B include all precincts independent on number of observations. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.001$

Table A2: Exclude cases where the incumbent party has changed between proposal and closure

	(1)	(2)
Proposal (all outcomes)	-0.992***	
	(0.268)	
Proposal (before decision)		-0.461
		(0.527)
Decision to close		-1.188***
		(0.371)
Proposal withdrawn		-0.774**
		(0.389)
Precinct FE	YES	YES
# of precincts	557	557
# of observations	2360	2360

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Exclude cases where the incumbent party has changed after the proposal

	(1)	(2)
Proposal (all outcomes)	-1.425***	
	(0.356)	
Proposal (before decision)		-0.325
		(0.512)
Decision to close		-1.568***
		(0.485)
Proposal withdrawn		-1.413**
		(0.556)
Precinct FE	YES	YES
# of precincts	361	361
# of observations	1514	1514

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Exclude proposals that occur during election years

	(1)	(2)
Proposal (all outcomes)	-0.907***	
	(0.274)	
Proposal (before decision)		-0.442
		(0.554)
Decision to close		-1.005***
		(0.378)
Proposal withdrawn		-0.829**
		(0.408)
Precinct FE	YES	YES
# of precincts	522	522
# of observations	2197	2197

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Exclude precincts with multiple school closure at the same period

	(1)	(2)
Proposal (all outcomes)	-0.919***	
	(0.265)	
Proposal (before decision)		-0.455
		(0.437)
Decision to close		-1.098***
		(0.369)
Proposal withdrawn		-0.762*
		(0.391)
Precinct FE	YES	YES
# of precincts	567	567
# of observations	2424	2424

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Exclude precincts without any untreated periods

	(1)	(2)
Proposal (all outcomes)	-0.927***	
	(0.256)	
Proposal (before decision)		0.169
		(0.408)
Decision to close		-1.166***
		(0.357)
Proposal withdrawn		-0.774**
		(0.389)
Precinct FE	YES	YES
# of precincts	442	442
# of observations	1946	1946

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Exclude precincts where the change number of eligible voters ever change by more then +/- 10 percent between two consecutive elections

	(1)	(2)
Proposal (all outcomes)	-0.910***	
	(0.266)	
Proposal (before decision)		-0.354
		(0.413)
Decision to close		-1.101***
		(0.372)
Proposal withdrawn		-0.756*
		(0.394)
Precinct FE	YES	YES
# of precincts	520	520
# of observations	2198	2198

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix B: Robustness checks - different specifications

An alternative estimation strategy is to use a difference-in-differences (DiD) approach. As discussed in the main paper, the relatively common practice of changing precinct borders between elections leads to a lot of missing data when matching election results over time. Information is lost when including all precincts separately, treated and untreated, and requiring them to be geographically unchanged over several elections.

There are about 6000 precincts in each election. To be included in our DiD analysis we have two requirements. First, a precinct border needs to be unchanged for three consecutive elections (as in the main estimation sample). Second, there need to be at least two precincts within a municipality that we can observe at an election. Under these conditions, 4672 precincts remain in the estimation sample.

For each election and precinct, we use information on the vote shares for the eight parties represented in the the Swedish national parliament. As we want to compare the vote share for the same party in each precinct over time, we include one observation per the eight parties for each precinct and election. Specifically, we estimate the following regression,

$$Y_{i,p,m,t} = \alpha_{i,p} + \beta_{p,m,t} + \gamma * S_{i,p,m,t} + \delta * C_{i,p,m,t} + \theta * W_{i,p,m,t} + \epsilon_{i,p,m,t}, \quad (1)$$

where $Y_{i,p,m,t}$ measure the vote share for the party p in precinct i located in municipality m in election-year t. The precincts-by-party fixed effects are represented by $\alpha_{i,p}$ and account for time-invariant factors that are cor-

related with election results for party p in precinct i. As we only want to exploit within municipality variation for the same party we include party-by-municipality-by-election fixed effects, $\beta_{p,m,t}$, that capture all common shocks to election results for a party within each municipality and election. Therefore, incumbency effects or municipality wide reforms that affect all precincts similarly in a municipality are accounted for by $\beta_{p,m,t}$. Any remaining variation in the outcome variable can only arise from within municipality differences over time between precincts for the specific parties. The indicator $S_{i,p,m,t}$ takes the value 1 if a school closure proposal has been made for a school in i while party p was incumbent but before the decision to close the school has been made, otherwise it is 0. If instead the decision to close the school has been taken while party p was incumbent $C_{i,p,m,t}$ takes the value 1 and 0 otherwise. Finally, if there have been a proposal while party p was incumbent that never was implemented $W_{i,p,m,t}$ takes the value 1 and otherwise 0. Any remaining variation is captured by the unobserved component $\epsilon_{i,p,m,t}$

In Table B1 we present the results when estimating equation 1. The estimated effect sizes are similar to our main results. Uncertainty around the estimate when a proposal is withdrawn increases slightly, which yields a higher p-value (p=0.059).

Our main identifying assumption is that in absence of any school closure proposal, the difference in vote share for the party proposing to close a school would remain the same between the affected precinct and the rest of the municipality. A way of loosening this assumption is to allow for a linear or quadratic trend in the outcome variable over time. Table B2 presents the estimate when we first include a linear precinct specific trend and then a quadratic trend to our main specification. Results are similar to the ones

Table B1: Difference in Difference results, excluding precincts with fewer then 3 observations

	(1)	(2)
Proposal (all outcomes)	-0.966***	
	(0.259)	
Proposal (before decision)		-0.360
		(0.402)
Decision to close		-1.330***
		(0.346)
Proposal withdrawn		-0.711*
		(0.376)
Precinct-by-party FE	YES	YES
Party-by-municipality-by-election FE	YES	YES
# of precincts	36867	36867
# of observations	141704	141704

Notes: Dependent variable: Vote shares for the parties expressed in percentage points. Standard errors clustered at the precinct-by-party level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

presented in the main paper, which strengthens our belief that the estimated effect is not driven by trends in the outcome variable.

Table B3 present the full regression output from the regression used to create the coefficient plot 3 presented in the main paper.

Table B2: Precinct specific time trends

	(1)	(2)	(3)	(4)
Proposal (all outcomes)	-0.904***	-0.915***		
	(0.329)	(0.331)		
Proposal (before decision)			-0.158	-0.169
			(0.425)	(0.427)
Decision to close			-1.138**	-1.168**
			(0.449)	(0.466)
Proposal withdrawn			-0.970*	-0.994*
			(0.553)	(0.544)
Precinct FE	YES	YES	YES	YES
Precinct specific linear time trend	YES	YES	YES	YES
Precinct specific quadratic time trend	NO	YES	NO	YES
# of precincts	599	599	599	599
# of observations	2541	2541	2541	2541

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B3: Separating effect for post-treatment periods

	(1)	(2)
Proposal (all outcomes), first election	-1.143***	
	(0.260)	
Proposal (all outcomes), second election	-0.713**	
	(0.283)	
Proposal (all outcomes), third or later elections	-0.767**	
	(0.320)	
Proposal (before decision), first election		-0.490
		(0.428)
Proposal (before decision), second election		-0.013
		(0.941)
Decision to close, first election		-1.347***
		(0.359)
Decision to close, second election		-0.853**
		(0.371)
Decision to close, third or later elections		-0.868**
		(0.430)
Proposal withdrawn, first election		-1.018**
		(0.396)
Proposal withdrawn, second election		-0.700
		(0.450)
Proposal withdrawn, third or later elections		-0.331
		(0.507)
Precinct FE	YES	YES
# of precincts	599	599
# of observations	2541	2541

Notes: Dependent variable: Difference in vote share for the party proposing to close a school in the precinct and the rest of the municipality, expressed in percentage points. Standard errors are clustered per precinct in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$