

Parents, Politics, and the Pandemic:
How Voters Preferences Influence School Board Policies

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I. Introduction¹

Mainstream political discourse has increasingly focused on national-level policy disagreements and electoral contests, often leaving the rich insights one can find at the local level overlooked (Drutman). But although conversations may be growing more nationalized, one component of local politics that has nevertheless become increasingly salient for American voters is the local school board.

School boards have increasingly been the subject of political controversy. They have become a platform for local residents to fight out national political conflicts with those they disagree with. This has led to coarsening discourse and even material harm. The US has observed increased cases of threats and harassment being targeted at school board members and local government employees, prompting even the United States Justice Department to begin intervening (Borter et. al, US Department of Justice).

With this sudden increase in attention around school boards, school board seats have consequently seen a massive uptick in political engagement. According to elections-cataloging nonprofit, *Ballotpedia*, 2021 saw 84 school board recall efforts against 215 school board members. This was one of the highest amounts of school board recall efforts that Ballotpedia has ever tracked, with years in this past decade averaging just 28 recall efforts per year (Smith).

As public interest in local school districts surges, it is important to evaluate the nature of these institutions. This is especially true with regard to the political responsiveness of school boards. As voters commit more attention and effort toward influencing these institutions, we might hope to see that their efforts are not wasted on an unresponsive system.

¹ Note: Much of Section I and II have been drawn from a similar thesis project "", submitted for another class

Different economic perspectives suggest vastly different expectations for how responsive one should expect local school boards to be. More traditional Public Choice theorists, for example, tend to be more pessimistic about school boards' tendency to respond to the needs of the average voter. More concentrated interests like teachers' unions are better positioned to override voters' preferences, according to this view. Some literature in development economics, however, points to the effect of reelection incentives on motivating local politicians to act in their constituents' interests. This view might assert that when incumbents feel the pressure of upcoming reelection, they may indeed act more responsively to voters' desires in order to guarantee reelection.

This paper seeks to evaluate which viewpoint more accurately characterizes how responsive one should expect local school boards to be. My analysis will examine a particular natural experiment on Virginia school board members who happen to face reelection during the first year of the unexpected COVID-19 pandemic. With the pandemic suddenly being imposed on all school districts, some subset of Virginian school districts will be suddenly forced into a situation where they must choose a COVID-19 response right before being evaluated by voters in an upcoming election. This paper will argue that parents will generally desire in-person learning policy. Therefore, if school boards in Virginia were indeed responsive to their constituents, then we should observe that school districts in an election year should be more likely to adopt the voter-preferred in-person learning model for the Fall 2020 semester.

II. Background Literature

School Governance in the US and Virginia

One of the defining characteristics of the American system of education governance is how decentralized it is. The US Constitution places education policy into the category of reserved powers delegated to state governments. State governments frequently follow the tradition of delegating much of their authority down to the municipal level. The body that wields this authority in most cases is a school board composed of elected members of a given school district's community (McGuinn & Manna).

In Virginia, school board members are elected in years that coincide with the election years of other local officials and that they are run such that a majority of school board members run for reelection when a majority of officials run for reelection. Virginian school board members have the power to, among other things, ensure schools are run efficiently and ensure that directives from the Virginia Board of Education are implemented and tracked ("Code of Virginia").

Public Choice Theory and Local Officials

The tradition of applying economic frameworks to the choices and behaviors of political agents can be traced to the school of economic thought known as Public Choice Theory. Public Choice Theory generally assumes that governmental actors should be thought of as rationally self-interested in the same way that economists tend to think of most economic agents (Alesina et. al).

One of the key predictions that Public Choice theorists make is that when observing government officials, small and concentrated interest groups may be better positioned to influence political outcomes compared to large and diffuse interests. This situation may occur because it is easier to solve collective action problems with a smaller group rather than a larger group (Olson).

Applied to this context of public school districts, this viewpoint suggests that groups like teachers' unions should be expected to have outsized influence over local policy compared to the larger and diffuse voting constituency of a school district (Boyd). Indeed, preliminary research into the nature of school boards across the US demonstrates how entrenched some political actors can be. The analysis of school districts conducted by Ford & Ihrke (2020), for example, suggests that a significant minority of school board incumbents may not have even faced a challenger in their last election cycle.

Concentrated Teachers Unions and COVID-19

Some components of this Public Choice viewpoint are seen in emerging literature studying the behavior of school districts during the COVID-19 pandemic. For example, multiple studies have provided some initial evidence that different proxies of teacher union strength significantly predict the choice to maintain remote learning policy among US school districts.

Deangelis & Makridis (2021) analyzes 835 public school districts across the US and find that even after controlling for local demographic characteristics, COVID-19 risk, and other confounders, four different measures of teachers union strength were predictive of a lower probability of opening in-person learning in the Fall 2020 semester at both the level of school districts and at the county level. Hartney & Finger (2021) examines several predictors for learning policy including political forces, market forces, and COVID-19 health outcomes. Their

analysis finds that district size (which serves as a proxy for teachers union strength) and 2016 Republican presidential vote share both act as significant predictors of learning policy while market variables and health outcomes do not. District size and lower 2016 GOP vote share predict lower in-person learning and higher remote learning when health, demographic, and income factors are controlled for. Mariano et. al (2022) find no effect from some proxies of teacher union power (i.e. “first face power” which works reactively and tries to win policy disagreements) but find significant effects from other proxies of teacher union power (i.e. “second face power” which works to proactively set agendas). Like the other results, high proxies of teacher union power are generally associated with lower chances of reopening schools with in-person learning policy during Fall 2020.

While the topic of learning policy decisions after the start of COVID-19 is still a nascent research area, multiple demonstrations of a link between teachers' unions and remote learning choices suggest that the interest group capture prediction outlined by Public Choice Theory may be accurate.

Electoral Incentives and the Role of Local Media

But although Public Choice Theory predicts that concentrated interests will always overwhelm the diffuse interests of the average voter, evidence from the field of development economics suggests that electoral accountability mechanisms still do have some ability to influence the behavior of local officials.

Ferraz & Finan (2007) observes that among randomly audited mayors in Brazil, those that face an upcoming election misappropriate fewer funds on average than term-limited mayors. Its findings suggest that reelection incentives can influence the decision-making of elected local officials and motivate them to forgo current corruption rents in the hopes of yielding greater

rents in the future. Although the context of this paper does not assess levels of corruption in US local governments, it does try to apply the same model of electoral accountability to school board members' policy choices. School board members may face the same pressure to act in their constituency's interests when faced with a reelection campaign, and they may attempt to maximize other benefits from their position by attempting to maintain their elected office. These benefits could include the compensation they receive for serving on the school board, the outsized power they hold in influencing local educational policy, and the reputational status they gain among community members for being a local official.

Ferraz & Finan (2008) builds on this model of political accountability by demonstrating how diffusion of information among voters may also be important for driving this electoral accountability mechanism. Ferraz & Finan (2008) demonstrates that the presence of local media outlets in the form of local radio stations increased the ability of voters to punish corrupt incumbent mayors by lowering their reelection chances. The authors argue that available a higher availability of news media may have helped spread information about the actions of mayors prior to their reelection campaigns, which then resulted in more voters having enough information to vote against the mayor in the upcoming election.

This model of electoral accountability being augmented by the presence of local news media has some parallels within existing literature that covers the effect of local news coverage declines on political outcomes.

Overall, much of the literature suggests a positive relationship between the abundance of local news coverage and levels of political engagement among local voters. Shaker (2014) connects a span of local newspaper closures in Seattle and Denver to disproportionate decreases in civic engagement compared to comparable areas in cities that did not experience newspaper

closures. Hayes & Lawless (2015) demonstrates that less local news coverage in congressional districts predicted lower political engagement and lower intention to vote in relation to US House midterm elections. These findings also held regardless of preexisting political awareness level, suggesting declines in local coverage can even lower political engagement for highly knowledgeable and active voters. Kubler & Goodman (2018) find a similar effect applied to local elections turnout, however they focus on the context of Switzerland rather than the US. Thus, local newspapers do indeed seem to prompt voters to be more politically engaged at both the national and local levels, as Ferraz & Finan (2008) observe.

Public Choice theory and studies of electoral incentives in development economics thus provide two competing hypotheses about the responsiveness of local school boards. Public Choice theorists predict that voters' preferences will have very little influence on policy outcomes when they conflict with concentrated interests. Electoral incentives research predicts that the desire to maintain power makes incumbents more likely to act in voters' interests when the threat of a reelection challenge looms near. This paper will thus attempt to empirically test which theory is more accurate in the context of local school board learning policy in Virginia during 2020.

III. Hypotheses

This paper will test whether the electoral accountability mechanism outlined in Ferraz & Finan (2007) and Ferraz & Finan (2008) can be observed in the context of the 2020 Virginia school board elections. Rather than measuring how electoral accountability can predict lower municipal corruption, this paper will measure how electoral accountability can predict the

implementation of policies that are more favorable to the voting constituency compared to other interest groups.

This analysis will assume in-person learning policy is more favorable to the voting constituency of municipal parents compared to fully remote or hybrid models. This assumption is consistent with national-level polling on parental opinions on learning models during the Fall 2020 semester. National polling conducted by the Pew Research Center in October 2020 shows that despite concerns about exposure risk, parents who had children undergoing in-person learning were more satisfied with the state of their children's instruction and were less concerned about their children falling behind compared to parents experiencing remote learning models (Horowitz & Igielnik). It also is consistent with developing research into the various harms associated with in-person learning, especially related to mental health outcomes for both parents and students. A cross-sectional survey analysis conducted by Verlenden et. al (2021) demonstrates significant associations between remote instruction and lower mental health and well-being outcomes for both school children and their parents. Notably, although the study does control for various demographic and income-based confounders, the authors note that there are other potential confounders that they did not account for and caution against drawing causal conclusions from their survey data. Nevertheless, polling data and this association of remote learning with worse mental health and well-being outcomes provide some initial evidence to support the assumption that in-person learning may on balance be more preferable for voting parents.

Under this assumption that in-person learning is preferable to remote learning for voting parents, this analysis will examine the following hypotheses:

Hypothesis 1: If a school district has at least one incumbent board member up for reelection in 2020, it will be less likely to adopt a remote learning policy during the Fall 2020 school semester.

Hypothesis 2: If a school district has at least one incumbent board member up for reelection in 2020, then a higher local newspaper circulation in the district's respective county will make it even less likely to adopt a remote learning policy during the Fall 2020 school semester.

This paper will thus attempt to reject the null hypothesis that districts with incumbent reelections are no less likely to adopt remote learning. It will also attempt to reject the null hypothesis that higher local newspaper circulation has no effect on a negative relationship between the presence of incumbent reelections and the choice of remote learning policy.

If this analysis rejects the null hypotheses, this particular research context provides evidence that US school board elections are responsive to voters according to the electoral accountability mechanism outlined in Ferraz & Finan (2007). If it fails to reject the null hypotheses, then this research context does not provide positive evidence that Ferraz & Finan (2007) is a more accurate model of local elections compared to Public Choice theory.

IV. Methodology

This paper uses the presence of an upcoming school board election in November 2020 to predict the likelihood of a public school district adopting an in-person learning model rather than a hybrid or fully virtual learning model.

Empirical Model

This treatment effect is estimated using a linear probability model. The probability of a given Virginian school district adopting a remote learning policy in Fall 2020 is predicted by the presence of an upcoming election for a school board member.

$$(LearnPolicy_i = 1) = \beta_0 + \beta_1 (Election2020_Inc_i) + \gamma \chi_i + \epsilon_i$$

In this model, the variable i represents an indicator for each of the 130 Virginian public school districts in the sample. $LearnPolicy_i$ is a dummy variable representing the learning model policy that the district has adopted for the Fall 2020 semester. The variable is marked 1 for a virtual or hybrid learning model, and 0 for an in-person learning model. The variable $Election2020_Inc_i$ is a binary variable that represents the occurrence of a 2020 election for an incumbent school board member. Notably, units that have a school board election but do not have an incumbent running for reelection are excluded from the treatment group. This is because these school districts have no existing incumbent whose decision-making would get influenced by the pressure of an upcoming election. The term χ_i represents a vector of covariates between the treated and control group that will be identified through balance checks on demographic, school district characteristics, income, and political affiliation variables that could represent potential confounders. β_0 is the intercept of the linear model and ϵ_i is the error term.

Following the analysis of Ferraz & Finan (2008), this paper adds a second model to estimate the interaction effect between the presence of an incumbent's election and the per capita circulation of local newspapers.

$$P(\text{LearnPolicy}_i = 1) = \beta_0 + \beta_1 (\text{Election2020_Inc}_i) + \beta_2 (\text{NewsPerCapita}_i) + \beta_3 (\text{Election2020_Inc}_i \times \text{NewsPerCapita}_i) + \chi_i \gamma + \epsilon_i$$

In this model, each variable is the same as the previous model and the new model adds the variable *NewsPerCapita_i*. *NewsPerCapita_i* represents an estimate of the amount of per-capita local newspaper circulation in the respective county of each school district *i*. The coefficient β_3 will estimate the interaction effect of the incumbent election and the amount of local newspaper circulation per capita.

Predictor Choice and Potential Challenges to Causal Inference

This treatment is exploited under the assumption that districts exogenously set election cycle timing far in advance of the first waves of the COVID-19 pandemic in the United States. If this assumption holds true, then the assignment of this predictor may represent an “as-if” random assignment of electoral pressure among Virginian school districts after unbalanced confounders are controlled for.

There are two situations in which this assumption may break down. In the first situation, districts set their election timings before 2020, as we assume. However, they could have also forecasted COVID-19 and the potential need for a remote learning policy before 2020, as well. This would open up the risk of an omitted variable bias or reverse causality: some factor could have motivated districts to both choose their learning policies and the timing of their elections before 2020, or districts could have chosen their learning policies first and later used that to justify when to hold future school board elections. I argue that this situation is not likely. Recent efforts to score states’ performance in responding to the pandemic suggest that Virginia’s

economic performance was lacking. The state experienced relatively high unemployment and a relatively large GDP contraction even after adjusting for industry differences between states (Kerpen et al.). Unless there was a powerful interest group that benefitted from general economic harm, Virginian local governments would likely try to use their foresight of the pandemic in order to contain pandemic-driven economic harm. This would satisfy their constituents and assure higher budgets from tax revenues. These governments would have implemented many preemptive policies under this objective. For example, with prior knowledge of the pandemic, Virginia could have modernized its legacy unemployment insurance system. However, it did not do so. Instead, it saw its outdated platform experience significant bottlenecks and delays under the sudden surge of pandemic unemployment claims (DeFusco). This limited a key automatic stabilizer that would have helped to lessen the economic harm of the pandemic-driven downturn. Since Virginia experienced relatively large economic harm from the pandemic and failed to implement some key preemptive policies, one can infer that local officials likely were not able to forecast COVID-19 before 2020. This means that if school districts decided on election timings before 2020, it is unlikely that they also decided on learning policy for the pandemic at that time.

The second situation that challenges the exogenous election timing assumption is the case in which election date choices were moved during the COVID-19 pandemic. This poses a risk of reverse causality if the decision to move election dates was influenced by the choice to implement either an in-person or remote learning policy in the fall of 2020. A confounder variable such as high per capita COVID-19 cases could have also acted as an omitted variable that influenced both the decision of whether to have an election in 2020 and the choice of what learning model to implement.

According to Ballotpedia’s log of changes to election dates and procedures in relation to COVID-19, Virginia’s only statewide attempt to shift election timing was Governor Ralph Northam’s proposal to shift all elections uniformly by two weeks during the spring of 2020. Since this proposal would have been Governor Northam’s choice and would have affected all districts equally, this would not represent a case where some districts self-select out of having a 2020 election due to their learning policy choice or due to an omitted variable.

However, it is important to note that Ballotpedia only tracks electoral policy changes proposed or implemented at the state level. There is no granular data tracking whether any of Virginia’s county or city governments passed resolutions to delay school board elections during 2020. Therefore, we must accept the caveat that although no state government actions biased the treatment by causing particular districts to delay elections, there could be cases of small school districts delaying their elections that did not receive coverage by news outlets or by Ballotpedia’s staff.

We can therefore not completely guarantee that 2020 Virginia school district incumbent elections vary exogenously with respect to learning policy choice. However, since the available evidence suggests that there is a high possibility that it does, this analysis will treat the occurrence of an incumbent election year as if it was a randomized treatment on school districts.

V. Data and Summary Statistics

Data on when elections were held was sourced directly from the Virginia Department of Elections (DOE) Historical Elections Database, where available records for local, state, and federal election results are provided for the public. The Virginia DOE tracks local- and county-level election results from the year 2000 to the present day and includes results for school board elections.

Figure 1 lists the full breakdown of the 133 Virginia public school districts’ electoral status. Three of the public school districts (Colonial Beach City, West Point, and James City), represented smaller independent school districts within larger county-level school districts. Since no pre-treatment data could be found for these areas and since their policy outcomes did not differ from the broader school district around them, these districts were consolidated into the larger districts of Westmoreland, King William County, and Williamsburg-James City County, respectively. School districts that experienced an election in the year 2020 were collected from this dataset. From this pool of 28 districts, 18 districts fell into the category of districts with incumbent elections (i.e. the treated group), and 10 fell into the category of districts with non-incumbent school board elections. Districts were sorted based on the electoral history of each of the candidates running in each election. If at least one candidate was marked as a winner of a previous election in the same school district within the last four years, the district was marked as an incumbent election. In total, 18 districts make up the treated group and 112 districts make up the control group of districts without incumbent elections.

Figure 1: District Categories

Variable	N
Total School District	133
Merged Districts	3
In-Sample Districts	130
Election 2020	28
<i>Incumbent Election (Treated)</i>	18
<i>Non-Incumbent Election</i>	10
Non-Election + Non-Incumbent Election (Control)	112

The outcome of interest for this analysis is the learning model policy choice for each school district during the Fall 2020 semester. This data is sourced from the COVID-19 School

Data Hub, which is a data aggregation project that references state records to create a comprehensive dataset on school districts. In particular, it tracks learning model policy, masking policy, and school enrollment across US public schools in the 2020-2021 school year. Using this project's data on school districts, each school district i had its learning policy choice marked under the outcome dummy variable $LearningPolicy_i$. This variable was set to 1 if the district choose a virtual or hybrid learning policy for the fall 2020 semester; it is set to 0 if the district pursued in-person learning instead.

Several pretreatment characteristics are linked to each school district's county. This includes demographic information from the University of Virginia's Welden Cooper Center's Demographics Research Group, average income estimates from the US Department of Commerce's Bureau of Economic Analysis, and recent partisan affinity from a Harvard Dataverse dataset tracking county-level vote totals for the 2018 midterm elections.

The University of Virginia's Welden Cooper Center's Demographics Research Group maintains an annually updated Virginia Population Estimates that makes adjustments to US Census Bureau population estimates to account for potentially undercounted groups such as university students in college towns. Its dataset estimates total county populations as well as county populations by age, race, and sex. The 2019 edition is used to derive several variables. First, the variable $Total Pop. (2019)_i$ is pulled from the dataset to represent the total population of each county. Then, using county-level absolute population counts for different age groups, sexes, and racial identities, percentage estimates of each demographic are found by dividing these absolute counts by the $Total Pop. (2019)_i$ variable. This constructs the variables $\% Minor (2019)_i$ (the percentage of a county under age 18), $\% Adult (2019)_i$ (the percentage of a county age 18 or older), $\% Working Age (2019)_i$ (the percentage of a county age 18 to 64), $\%$

Retirement Age (2019)_i (the percentage of a county age 65 or older), *% Male (2019)_i*, *% Female (2019)_i*, *% White (2019)_i*, *% African American (2019)_i*, *% Asian (2019)_i*, *% Other Race (2019)_i*, and *Two Or More Races (2019)_i*.

Other district characteristics were also aggregated from both the COVID-19 School Data Hub and the Virginia Population Estimates. First *Total Students per District_i*, which represents the total student enrollment under each school district is pulled from the COVID-19 School Data Hub. Then this number is divided by the *% Adult (2019)_i* variable of each county to construct the *Students per Adult_i* variable, which is relevant as a pretreatment characteristic because many other analyses of school districts leverage the number of students per voter as a proxy of teacher union strength (Rose & Sonstelie). According to these analyses, holding the number of voters constant, an increase in students per voter correlates with a higher number of teaching staff per voter. The greater the teaching staff per voter, the greater the resources a union can leverage to influence policy outcomes.

Income differences between counties are directly sourced from the US Department of Commerce's Bureau of Economic Analysis, which maintains a dataset estimating Personal Income by County and Metropolitan Area. After matching counties with counties in the main dataset, the average income per county in dollars is directly imported as *Income Per Capita (2019)_i*.

Finally, partisan differences between counties are estimated using the Harvard Dataverse dataset "November 2018 general election results (county-level)". This dataset tracks county-level vote totals for US general election races during the 2018 midterm elections. The 2018 Virginia Senate election was chosen as a proxy for overall partisan affiliation. Votes for the Democratic, Republican, and Libertarian candidates were summed to estimate a vote total per county. Then

percentage votes toward the Democratic, Republican, and Libertarian Party were estimated by dividing each party's respective vote by the summed vote total per county. This constructs the variables $\% Democrat (2018)_i$, $\% Republican (2018)_i$, and $\% Libertarian (2018)_i$.

Finally, the interaction effect that we wish to measure requires local newspaper circulation to interact with school districts that are experiencing an incumbent election. In order to measure local newspaper circulation, this paper leverages the US Expanding News Deserts dataset maintained by the UNC Hussman School of Journalism and Media. The project tracks the status of local news organizations across the US in order to quantify and research the gradual decline of local news outlets.² Local newspapers in Virginia are selected from this dataset and, using the county where each publication is headquartered, the local newspapers' total circulation is aggregated across the county. Then, leveraging the $Total Pop. (2019)_i$ county population estimate from the Virginia Population Estimates dataset, the variable $Newspaper Circulation Per Capita_i$ is constructed by dividing each county's total circulation by its estimated 2019 population.

Figure 2 provides a summary table and descriptive statistics for each of these pre-treatment characteristics.

² For more in-depth details about the project's data collection methodology, please refer to: <https://www.usnewsdeserts.com/methodology/>

Figure 2: Descriptive Statistics for District Characteristics

Variable	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
<i>Demographic Characteristics</i>						
Total Pop. (2019)	64727.55	127941.564	2190	14739.5	53378	1147532
% White (2019)	0.759	0.167	0.183	0.661	0.901	0.982
% African American (2019)	0.189	0.16	0.004	0.055	0.288	0.77
% Asian (2019)	0.021	0.032	0.002	0.006	0.02	0.203
% Other Race (2019)	0.007	0.006	0.002	0.004	0.008	0.068
% Two Or More Races (2019)	0.024	0.009	0.003	0.017	0.029	0.047
% Male (2019)	0.495	0.025	0.456	0.482	0.5	0.628
% Female (2019)	0.505	0.025	0.372	0.5	0.518	0.544
% Minor (2019) (< 18 Yrs. Old)	0.199	0.031	0.125	0.179	0.22	0.279
% Working Age (2019) (18 to 64)	0.6	0.046	0.479	0.577	0.618	0.78
% Adult (2019) (> 18 Yrs. Old)	0.801	0.031	0.721	0.78	0.821	0.875
% Retirement Age (2019) (> 65)	0.2	0.054	0.087	0.164	0.233	0.375
<i>School System Characteristics</i>						
Total Students per District	9335.214	20348.913	175	1750.5	7461	176550
Students per Adult	0.165	0.039	0.072	0.14	0.185	0.27
<i>Income Characteristics</i>						
Income Per Capita (2019)	47006.923	14116.622	29704	37702	51999.25	104052
<i>Partisanship in 2018 Election</i>						
% Democrat (2018)	0.461	0.159	0.205	0.338	0.57	0.895
% Republican (2018)	0.522	0.161	0.097	0.412	0.652	0.781
% Libertarian (2018)	0.016	0.005	0.004	0.011	0.019	0.037
<i>Local News Characteristics</i>						
Newspaper Circulation Per Capita	0.26	0.364	0	0	0.343	2.172

VI. Results

Incumbent Election Models

This analysis leverages the assumption that the occurrence of incumbent elections represents an “as-if” randomized treatment. Under this assumption, balance checks on pre-treatment characteristics still need to be conducted to guarantee that if there are any significant differences in these characteristics, they can be controlled for in the linear probability model.

Figure 3 shows a table of balance checks between districts with incumbent elections and districts without incumbent elections. The final column of the table shows the F-statistic that results from the Analysis of Variance (ANOVA) comparison of the two groups along each pre-treatment characteristic. A statistically significant F-statistic connotes that the two groups are significantly different with respect to a given characteristic. According to these comparisons, statistically significant differences occur along the racial, sex, and age demographics of the two groups as well as their 2018 partisan characteristics. Because these differences are significant, a factor from each of these categories is added as a control variable into the linear probability model. Note that since much of factors within these categories are likely very collinear (e.g. % Male (2019) and % Female (2019) in capturing sex differences), only one factor from each category is added. The variables that are added as controls are % White (2019) to capture racial differences, % Male (2019) to capture sex differences, % Working Age (18 to 64) (2019) to capture age differences, and % Republican (2018) to capture partisanship differences.

Figure 3: Balance Table - Districts without Incumbent Election vs. Districts with Incumbent Elections

Variable	Incumbent Election 2020						ANOVA
	0			1			
	N	Mean	SD	N	Mean	SD	
<i>Demographic Characteristics</i>							
Total Pop. (2019)	112	58345.08	128476.873	18	104795.278	120237.156	F=2.063
% White (2019)	112	0.779	0.155	18	0.633	0.192	F=13.02***
% African American (2019)	112	0.172	0.148	18	0.298	0.195	F=10.328***
% Asian (2019)	112	0.02	0.034	18	0.029	0.018	F=1.137
% Other Race (2019)	112	0.006	0.007	18	0.008	0.003	F=0.429
% Two Or More Races (2019)	112	0.022	0.009	18	0.033	0.008	F=21.732***
% Male (2019)	112	0.497	0.025	18	0.479	0.017	F=9.503***
% Female (2019)	112	0.503	0.025	18	0.521	0.017	F=9.503***
% Minor (< 18 Yrs. Old) (2019)	112	0.197	0.03	18	0.21	0.033	F=2.599
% Working Age (18 to 64) (2019)	112	0.595	0.042	18	0.632	0.061	F=10.527***
% Adult (> 18 Yrs. Old) (2019)	112	0.803	0.03	18	0.79	0.033	F=2.599
% Retirement Age (> 65) (2019)	112	0.207	0.052	18	0.158	0.046	F=14.176***
<i>School System Characteristics</i>							
Total Students per District	112	8558.389	20802.129	18	14211.944	16922.481	F=1.2
Students Per Adult in District	112	0.164	0.039	18	0.167	0.034	F=0.052
<i>Income Characteristics</i>							
Income Per Capita (2019)	112	47415.991	14969.209	18	44461.611	6412.599	F=0.678
<i>Partisanship in 2018 Election</i>							
% Democrat (2018)	112	0.437	0.147	18	0.612	0.149	F=21.914***
% Republican (2018)	112	0.547	0.149	18	0.369	0.149	F=22.141***
% Libertarian (2018)	112	0.015	0.005	18	0.018	0.006	F=4.584**
<i>Local News Characteristics</i>							
Newspaper Circulation Per Capita	112	0.254	0.358	18	0.295	0.408	F=0.195

Statistical significance markers: * p<0.1; ** p<0.05; *** p<0.01

Figure 4 shows the result of the Linear Probability Model under three conditions. Model (1) shows the naive estimation of the effect of an election year on the probability that the district implements remote learning. No significant treatment effects are found, but without controlling for pre-treatment differences, this may be due to unbalanced pre-treatment confounders. Model (2) incorporates the controls identified in the pre-treatment differences between the treated and control groups. There is still no significant treatment effect found, suggesting that even when some observable confounders are controlled for, incumbent elections still have no impact on the learning policy outcome. Model (3) incorporates the interaction variable (local news circulation within the district's county) alongside the same control. This model finds that the interaction term is significant at the 5% level. This means that after controlling for pre-treatment differences, being in an incumbent election year and having a high local newspaper circulation may significantly lower the chance of remote learning being implemented in a school district.

Since the interaction effect coefficient is statistically significant, Model (3) allows us to reject the null hypothesis at the 95% confidence level in the case of both Hypothesis 1 and Hypothesis 2. The coefficient of the interaction term is -0.414, which means that for districts in an incumbent election year, having 1 local newspaper circulating per resident of the district predicts a 41% lower chance of implementing in-person learning during the fall of 2020. Importantly, the level of 1 local newspaper copy circulating per capita is very high according to our summary statistics in Figure 2, as that value already exceeds the 75 percentile of 0.343 newspaper copies circulating per capita.

Figure 4: Linear Probability Model - Effect of Incumbent Election on Chance of Remote Learning Policy

	(1)	(2)	(3)
Incumbent Election 2020	0.024 (0.068)	-0.075 (0.077)	0.046 (0.092)
Newspaper Circulation Per Capita			0.095 (0.071)
Incumbent Election 2020 × Newspaper Circulation Per Capita			-0.414 ** (0.173)
% White (2019)		-0.375 (0.216)	-0.300 (0.215)
% Male (2019)		-1.802 (1.153)	-1.706 (1.137)
% Working Age (18 to 64) (2019)		0.232 (0.719)	0.420 (0.720)
% Republican (2018)		-0.014 (0.270)	-0.032 (0.266)
(Intercept)	0.920 *** (0.025)	1.978 *** (0.544)	1.745 *** (0.548)
N	130	130	130
R2	0.001	0.070	0.113
logLik	-12.110	-7.820	-4.773
AIC	30.220	29.640	27.546

*** p < 0.01; ** p < 0.05; * p < 0.1.

Non-Incumbent Election Models

Although this analysis identified an interaction effect that was significant at the 5% level, it is still not certain that the reelection pressures on incumbents was the primary cause of this effect. For example, election years in general could drive high amounts of political engagement among voting parents, which then caused school districts to pursue different policies. To isolate the effect of incumbency reelection incentives on this learning policy outcome, this paper conducts the same analysis on the group of 10 districts with non-incumbent elections in 2020. If the effect is driven by pressures on incumbents, we would expect to see no significant effect in districts without incumbents. But if the effect is derived from just the election year itself, we would expect to see a similar significant effect in this non-incumbent group.

Figure 5 outlines the balance checks on pre-treatment characteristics between the districts with non-incumbent elections and the districts without non-incumbent elections. It finds that there are no significant differences on pre-treatment observable characteristics between the non-incumbent election districts and the rest of the districts. This suggests that there are no observable control variables that must be added to the model in order to see the effect of a non-incumbent election on the chance of implementing remote learning.

Figure 5: Balance Table - Districts without Non-Incumbent Election vs. Districts with Non-Incumbent Elections

Variable	Non-Incumbent Election 2020						ANOVA
	0			1			
	N	Mean	SD	N	Mean	SD	
<i>Demographic Characteristics</i>							
Total Pop. (2019)	120	66361.446	131552.1	10	44957.4	72287.601	F=0.257
% White (2019)	120	0.757	0.168	10	0.786	0.169	F=0.278
% African American (2019)	120	0.191	0.161	10	0.161	0.165	F=0.325
% Asian (2019)	120	0.021	0.032	10	0.021	0.032	F=0.003
% Other Race (2019)	120	0.007	0.006	10	0.008	0.005	F=0.432
% Two Or More Races (2019)	120	0.024	0.01	10	0.024	0.008	F=0.007
% Male (2019)	120	0.495	0.025	10	0.486	0.011	F=1.346
% Female (2019)	120	0.505	0.025	10	0.514	0.011	F=1.346
% Minor (< 18 Yrs. Old) (2019)	120	0.199	0.031	10	0.202	0.026	F=0.093
% Working Age (18 to 64) (2019)	120	0.601	0.046	10	0.596	0.056	F=0.103
% Adult (> 18 Yrs. Old) (2019)	120	0.801	0.031	10	0.798	0.026	F=0.093
% Retirement Age (>65) (2019)	120	0.2	0.053	10	0.202	0.071	F=0.011
<i>School System Characteristics</i>							
Total Students per District	120	9654.182	21030.598	10	5475.7	8127.966	F=0.388
Students Per Adult in District	120	0.165	0.039	10	0.168	0.04	F=0.085
<i>Income Characteristics</i>							
Income Per Capita (2019)	120	46912.658	13767.909	10	48138.1	18666.81	F=0.069
<i>Partisanship in 2018 Election</i>							
% Democrat (2018)	120	0.461	0.157	10	0.467	0.18	F=0.016
% Republican (2018)	120	0.523	0.159	10	0.514	0.183	F=0.029
% Libertarian (2018)	120	0.015	0.005	10	0.017	0.005	F=1.033
<i>Local News Characteristics</i>							
Newspaper Circulation Per Capita	120	0.258	0.33	10	0.282	0.678	F=0.037

Statistical significance markers: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Figure 6 outlines the results of the linear probability model analysis using non-incumbent elections as a predictor. Model (4) demonstrates that there is no significant effect of non-incumbent elections on the chance of implementing remote learning. Model (5) also incorporates the interaction variable (newspaper circulation per capita), and finds no significant interaction effect as well.

These results demonstrate that the interaction effect between incumbent elections and newspaper circulation cannot be replicated using nonincumbent elections. The significant treatment effect in Model (3) thus is not likely to be caused from characteristics of being in an election year in general, but by being in an incumbent election year in particular.

Figure 6: Linear Probability Model - Effect of Non-Incumbent Election on Chance of Remote Learning Policy

	(4)	(5)
Non-Incumbent Election 2020	-0.026 (0.088)	-0.042 (0.098)
Newspaper Circulation Per Capita		0.012 (0.074)
Non-Incumbent Election 2020 × Newspaper Circulation Per Capita		0.056 (0.152)
(Intercept)	0.926 *** (0.024)	0.922 *** (0.031)
N	130	130
R2	0.001	0.003
logLik	-12.131	-11.980
AIC	30.261	33.960

*** p < 0.01; ** p < 0.05; * p < 0.1.

VII. Discussion

Interpretation

Figure 4 demonstrates that there is a significant interaction effect between incumbent elections and per capita local newspaper circulation; the null hypothesis is therefore rejected at the 95% confidence level. However, given that this level of statistical significance is a general rule of thumb and the interaction effect was not significant at a higher level, there may be some room for caution in deeming these results significant.

Some could argue that this result may be capturing an effect related to the election year rather than to the electoral pressures placed on incumbents. However, the results in Figure 6 suggest that this is not the case. By recreating the same analysis in Figure 6 using the districts with non-incumbent elections in 2020, we were able to test a counterfactual group that is similar in having an election year but different in the presence of an incumbent. By failing to find significant effects in the models in Figure 6, we have stronger certainty that the effect in Figure 4's results are driven by incumbency and not by the election year.

Limitations

Although incumbent elections and news circulation were found to significantly predict in-person learning policy adoption, there are many limitations to this analysis that limit the strength of this causal link.

One limitation, which was considered in Section IV. Methodology, is that there may be cases where smaller districts decided to change their election data after deciding on their learning policy. Although Virginia's Department of Elections captures election results and Ballotpedia

tracks state actions that changed election procedures, changes to election dates could have occurred locally and gone unreported to either source. Although this likely did not occur systematically across the 130 districts, the descriptive statistics in Figure 2 indicate that some districts could be as small as a few thousand people. Several of these smaller communities could have shifted election dates without Ballotpedia or other news outlets noticing. If this did occur, this could present risks of either reverse causality (i.e. the learning policy choice predicting whether an election ought to occur in 2020) or an omitted variable predicting both learning policy and election date. Some would-be incumbents up for reelection might push back their election dates after implementing remote learning either to avoid the electoral backlash of doing so or to mitigate the damage of high risks of COVID-19 infection in their district. How these cases would bias the observed treatment effect is also inconclusive.

Another limitation of this analysis is that it assumes that, in general, incumbents would like to maintain office if there are no explicit term limits that prevent them from doing so. This paper did not identify why each of the 10 non-incumbent election school districts had open seats rather than incumbents campaigning for reelection. Some omitted variables, such as high stress from dealing with severe COVID-19 outcomes, could have guided some incumbents to not seek reelection during their 2020 election year and could have influenced them to choose remote learning policy.

This paper also does not consider any information about previous elections, which could also present unobserved confounders. For example, some school districts may have election years that cluster (such that many seats are up for reelection in a short span of years), while other school districts may have more spread-out elections. If it happened to be the case that the elections with incumbents in 2020 coincidentally were also districts that experienced a large

cluster of elections over the last few years, this could provide a difference in political enthusiasm that confounds the results. In this case, the policy outcome might be driven by more latent political engagement and lobbying from other recent elections rather than the incumbent reacting to their upcoming election.

Finally, this study is focused on a single state and a single policy outcome. It is not necessarily predictive of how one should expect the nearly 14,000 public school districts across the US to behave. And its findings may not necessarily be robust out of the context of COVID learning policy, especially if voter preferences for another issue are more ambiguous and the salience of the issue is much lower.

Implications

This paper suggests that one can expect school boards to be responsive to the demands of voters when reelection pressures are very strong and when a district's local news media environment is abundant. This provides evidence that the electoral accountability mechanism outlined in Ferraz & Finan (2007) and Ferraz & Finan (2008) may be applicable to the context of local governments in the US. It also conflicts with some predictions made by Public Choice theorists by demonstrating that in some cases the more diffuse interests of voters can be represented by elected officials when conditions are sufficient to pressure those officials. The generalizability of these findings, however, requires a more comprehensive set of data on school board election results in other states. If data is available, this methodology might also be useful in other cases of elected officials. Any officials who could influence large COVID-related policies and faced reelection at the beginning of the COVID-19 pandemic might have faced similar pressures that influenced their policy choices.

This paper also provides strategic insights for the growing share of voters who are interested in influencing policies at the local school board level. These voters may find success in focusing on lobbying school board members seeking reelection soon and by leveraging local news outlets to spread their message to other voters.

Unfortunately for these voters, local newspapers are closing down across the US at an increasing rate due to competition with online alternatives (Abernathy et. al). This paper does not test how robust the interaction effect between incumbency reelection and news media is when considering the consumption of digital news alternatives rather than traditional local newspapers. Unless more comprehensive data become available that can identify digital news consumption at the school district level, engaged voters may consider supporting any legacy local newspapers in their school district in order to keep the voting public informed about upcoming school board elections.

Interest groups with policy preferences that conflict with these voters may consider the inverse of this strategy: avoiding trying to influence officials with the most near-term reelection incentives and limiting support for local news publications. Interest groups may have alternative means to influence officials outside of guaranteeing a certain number of electoral votes. Leveraging these alternatives when incumbents face reelection far in the future may be strategic because those incumbents may experience much less pressure to satisfy voters compared to those in their reelection year.

VIII. Conclusion

This paper sought to examine how responsive US school boards are to the preferences of voters. In particular, it sought to answer this question in the particular research context of

COVID-19 learning model policy during the 2020 Virginia school board elections. Although Public Choice theory predicted that school boards would not be very responsive to voters' preferences, this paper considered literature about electoral systems in development economics and hypothesized that school boards would be responsive under the right circumstances. In particular, it hypothesized that the combination of an incumbent election year and abundant local news circulation would create the right conditions for incumbents to be pressured to act in voters' interests.

Leveraging the occurrence of a school board incumbent election as an “as-if” random treatment and controlling for observable pretreatment differences, this paper found that the interaction between being in an incumbent reelection year and per capita levels of local news circulation significantly lowered the chances that school boards adopted remote learning policy. This effect was shown to be absent from the group of districts that had elections in 2020 but did not have incumbents running in those elections.

These findings face many limitations. There are several potential unobserved confounders that limit the causal inferences one can draw from this study. The intentions behind why some school board members did not seek reelection are not observed and this analysis does not consider how the occurrence of recent elections before 2020 may correlate with the elections in this sample. This paper also only focuses on Virginian school districts' policy choices on the particular issue of COVID-19 learning policy, so the generalizability of these conclusions to other states and other policies is still uncertain.

Despite these limitations, these findings provide preliminary evidence that the increased attention American voters are investing in local school boards is not in vain. Voters may consider pressuring incumbent school board members facing reelection in particular and leveraging

available local news media to inform other voters about upcoming elections. With broader data on the electoral outcomes of school board elections across the United States during COVID-19, future research may shed more light on the behavior of school boards. As research builds we may gradually grow to understand school boards and predict how they will react and evolve as more and more voters make them their political battleground of choice.

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