Getting the Vote: Do School Bond Issuances and Outcomes Depend on Ballot Disclosures? *

This draft: September 19, 2023

ABSTRACT

Over $700 billion of education municipal bonds outstanding are approved by public ballot, and they improve real outcomes, including standardized test scores and home values. Republican districts and those with fewer school-aged children approve fewer ballots. Parsing 1,228 ballot texts in California, we show that ballots mentioning tax increases (fixing HVAC systems) have 3.4% lower (2% higher) approval rates. These disclosure effects are heterogeneous; younger voters more often vote yes on ballots mentioning technology. Controlling for specific uses, voters more often approve ballots using needy descriptions, such as “aging” or “deteriorating,” suggesting they are also swayed by soft information.

JEL Classification: G18, G51, G14, H74, H75.

Key words: fixed income, municipal bonds, public voting, disclosure, market frictions, education.

I. Introduction

Over one trillion dollars in school bond debt is currently outstanding, and ongoing needs are significant: a General Accounting Office survey published in 2020 (GAO, 2020) found that 54% of public school districts need to update or replace several building systems in their schools.[1] While local property taxes cover most operating expenses, elementary and secondary school districts in the United States rely on local municipal bonds for capital projects. A full 41% of districts (about 36,000 schools) require new heating, ventilation, and air conditioning (HVAC) systems. (GAO, 2020). HVAC issues are particularly worrisome since they lead to indoor air quality problems and mold: in some schools these issues were severe enough to cause schools to miss instructional days. Of course, other issues such as asbestos, overcrowding, leaky roofs, and inadequate structural design can also lead to a sub-optimal learning environment for students.

As shown in Figure 2, most states require that resident voters from each school district authorize future bond issuances. While there is variation across states and over time, a bond ballot (known as a referendum) generally includes a brief description of the project(s), the total dollar amount authorized, and sometimes details about expected costs.[2] Most bond ballot approvals lead to several separate bond issuances, often over a period of many years. Hence, while voters approve the overall project and dollar amount, school district officials have latitude regarding timing of issuance and characteristics such as coupon rate, choice of underwriter and adviser, and bond maturity.

Collectively, voters bear significant responsibility for their school districts' current and future capital project needs. Based on bond issuance and survey data, current school district needs are substantial and future needs are even more pressing. In this paper, we take a close look at the impact that the voting process – including the voting threshold and textual information from ballots – has on school bond issuance and real outcomes. This research question is important for at least three reasons. First, the large dollar magnitude of educational bonds merits an examination of their approval process. Second, if capital improvements lead to positive real outcomes (as our paper as well as prior literature shows), then ensuring that voters are well-informed before participating in the bond selection process should be a top priority for school district officials and policymakers. Finally, since the textual detail provided to voters at the time of voting is by necessity quite brief,

[1] See Figure 1 for detail on spending in California between 1998 and 2018.
[2] See Figure 3 for an example of a referendum.

understanding how limited information differentially influences voters' decisions can help inform optimal future ballot design.

Despite the clear need for school district capital funding, it is not obvious that every project will provide benefits for schools. For example, due to conflicts of interest or lack of expertise, school districts may not always choose to fund value-enhancing projects. Further, circumstances (such as the interest rate environment or a district's credit rating), can change between voter approval and bond issuance, leading to unexpected costs or delays. Finally, improvements to schools can take time to complete, and their impact on real outcomes, such as home prices and test scores, can take even longer to realize. Using a sample of 1,256 bond elections leading to 2,591 bond issuances between 1998 and 2020 from California, we first provide initial causal evidence in support of the claim that bond passage leads to real improvements in school districts. Comparing districts that narrowly win to districts that narrowly lose bond ballots, we employ a regression discontinuity design (RDD) and find that capital spending, test scores, and home prices increase for up to four years following bond passage.

Next, we investigate whether the voting process efficiently separates value-enhancing bond proposals from non-value enhancing proposals. Notably, we use a policy change in 2001 (Proposition 39) whereby the bond approval threshold was suddenly reduced from 66.67% to 55% for school bond ballots. This proposition had a measurable effect because it immediately allowed districts to pass bond referenda that would have been marginally rejected in prior years. First, we show that the districts that had difficulty passing bonds before the regulation change (our treated group) are indeed more likely to pass bonds after the regulation change in 2001, compared to the untreated group. Next, using a triple difference-in-differences design, we show that bonds passed by the treated group lead to significant improvements in test scores and home prices after 2001. These results imply that the threshold of 66.67% prior to 2001 was arbitrary and too strict since lowering the threshold allowed more bonds to pass with significantly better outcomes for issuing districts.

Since we find that bond passage benefits school districts, we next study what factors drive voter turnout and approval rates. Key factors include voter demographics, such as political party and voter age, as well as the political competitiveness of the current election. We also include district characteristics, such as district wealth and size, as control variables. Focusing first on voter turnout, we have two key findings. First, voter turnout is lower in districts dominated by either the Democratic or Republican party, reflecting the idea that one's vote may not "move the needle" as

much in these elections. Second, older residents (those over age 66) are more likely to vote than younger residents. This result is consistent with prior literature, such as Rubenfield and Thomas (1980), who note that older voters are more involved with school politics and have prior experience with school bond elections.

Turning to how voter demographics impact bond election outcomes, we first show that the percent of yes votes is highly positively (negatively) related to the percentage of registered Democrats (Republicans) in a district. This result is also consistent with prior literature and survey results (see, for example, Henderson (2015) and Brookings (2015)). Next, the percentage of yes votes decreases with both the proportion of voters aged 17-25 and over 66—both of whom are less likely to have school-aged children and are less likely to directly benefit from education bond passage. We also include a proxy for engagement, measured as the ratio of registered voters to eligible voters, and find that more engaged districts are more likely to approve bonds. Overall, we find that voter and district demographics, such as age and political engagement, significantly impact both voter turnout and bond ballot success rates.

Finally, we study the relation between bond ballot success and the limited textual information provided by the ballot referendum. Examining the referendum is important, because for many voters, this brief snippet of text may be their main source of information regarding the bond measure. A survey of Americans on school-related issues by Brookings (2015) supports this idea, stating: "These [inconsistent opinions and lack of knowledge about school issues] are the trademarks of what public opinion scholars call "non-attitudes," uninformed and haphazard responses without any real underlying opinion. […] The opinions that most Americans express on school issues are not well-informed, not organized in any coherent way, and not consistent over time." To test whether these claims may be driven by the information (or lack thereof) provided on bond referenda, we next turn to an analysis of the ballot contents.

We begin by examining ballots' disclosed costs. Since 2018, bond ballots are required to disclose an expected tax burden; prior to 2018, disclosure of this information was voluntary and rare. When disclosed, ballots tend to either state "no tax increase" or to state an explicit estimate of the expected tax burden. We find that, on average, voters respond positively to a promise of "no tax increase." This response varies with voter sophistication. For example, young voters are particularly supportive of these "no tax increase" ballots, while older voters and voters in more engaged districts are less supportive. From a practical standpoint, a promise of "no tax increase" comes with the trade-off of

extremely high interest costs in the future; resulting bonds are generally long maturity (up to 40 years), high-yield, zero coupon bonds. Sophisticated voters (as proxied by age and engagement) are more likely to anticipate the high future cost of these bonds and vote against them. By contrast, all voters are less likely to support ballots when a dollar tax cost is explicitly disclosed. These results imply that the quality (and specificity) of cost disclosure leads to more informed voter decisions.

We next examine disclosed bond benefits, grouping disclosures into three categories: 1) specific fixes, such as HVAC or remediating mold, 2) improving technology, and 3) new construction. We find that voters respond positively to requests for HVAC improvements, but not for other key improvements including mold, fire, and leaks. These results are strongest for young and middle-aged voters and for districts with more competitive elections. We also find that, on average, voters do not respond to a mention of technology or new construction. However, younger voters are more likely to vote for technology improvements than older voters, as are voters who turn out to vote during more competitive elections. Consistent with prior analyses, we find some evidence supporting the idea that detailed information can generate higher voter approval.

Finally, we examine how voters respond to other, arguably less-useful aspects of the ballot, such as the use of needy language, the length of the ballot, or ballots mentioning statewide budget cuts (at a time when all counties faced statewide cuts). Voters respond positively to needy language – adjectives like "aging," "hazardous," "crowded," and "deteriorating" – even after controlling for the specific, intended repairs. These results are particularly strong when the election year is politically competitive, drawing additional voters who may not be as invested in school bonds as in other years. Next, voters (especially older voters) respond positively to ballots with more words, even when the ballots do not necessarily contain additional information. Finally, if a ballot mentions statewide budget cuts, which by definition apply to all ballots, they are more likely to gain approval, especially among younger voters. Ultimately, the results of this last analysis indicate that voters appear to be swayed by "softer" aspects of the ballot—information that is not directly related to the costs or benefits of the bond issue.

Our paper makes a significant contribution to the municipal bond, education funding, voter behavior, and disclosure literatures. How and when schools are funded, and the impact of this funding affects parents, students, and taxpayers both directly and indirectly. Ultimately, to our knowledge, our paper is among the first to link the education bond voting process with turnout and outcomes, as well as to examine textual determinants of voter decisions. We identify several frictions

in the process that can guide policymakers as well researchers of the topic in the future. For example, voting thresholds that apply to most general obligation municipal bonds in the U.S. may be too stringent or arbitrary. In addition, voters respond to soft and less-meaningful information, such as needy descriptions. Removing these adjectives from the ballot may allow room for more meaningful information, such as the anticipated costs or benefits, and allow voters to make more informed decisions.

II. Related Literature

This paper contributes to several strands of literature: studies on frictions in municipal financing, studies which analyze costs and benefits of education funding, studies on disclosure and information in financial markets, and studies on voter behavior in U.S. elections. To our knowledge, we are the first to examine the impact of voter ballots on the municipal market, and one of just a few papers that link voter approval of an education bond with changes in school districts' real outcomes. We demonstrate that both hard and soft information sway voters' decisions on bond ballots, and ultimately, affect the success of local bond issuances.

First, we contribute to a growing literature that studies frictions in public bond markets. Examining embedded call options, prior work finds that municipalities often refund bonds early (Ang et al. 2017) or delay current refundings (Cohen et. al. 2022) at a present value loss. Another strand of literature finds high underwriting costs due to several factors including political corruption (Butler et. al. 2009; Gao et. al. 2019); discrimination (Dougal et. al. 2019); local opioid abuse (Cornaggia et. al. 2022); conflicts of interest when an underwriter also serves as adviser (Garrett 2020); and insurance guarantees that may not actually increase bond marketability (Cornaggia et. al. 2021). Finally, Joffee (2016) shows that municipal financing issuance fees are high, amounting to over $3 billion annually. Our paper builds upon past work by showing that the expectation of high costs can discourage voters and may cause good projects to go unfunded.

Second, we add to a rich body of literature that studies how education is funded, and relatedly, whether funding leads to significant economic improvements for school districts. For example, additional education investments are linked with higher rates of graduation and future wages (Jackson et. al. 2016); higher pupil proficiency (Hong and Zimmer 2016); and higher home values (Cellini et. al. 2010). In addition to showing that municipal bond issuance and subsequent funding

improves test scores and home prices, we find that when voting thresholds are lowered, more bonds win approval and improve subsequent outcomes for the issuing districts.

Next, we build upon previous literature that examines the effect of increased information or greater disclosure in financial markets. The corporate finance literature includes a rich body of both theoretical (examples include Diamond (1985); Merton (1987); Diamond and Verrecchia (1991); Baiman and Verrecchia (1996); Admati and Pfleiderer (2000); Hermalin and Weisbach (2012)) and empirical work (examples include Bailey et al (2006); Gao (2008); Loughran and McDonald (2011); Jayaraman and Wu (2019)). This literature studies the effects of information disclosure by firms on both market outcomes (such as price efficiency or volatility) and firm outcomes (such as investment decisions.) More closely related to our work, which looks at the decisions of taxpayers, a body of consumer finance literature examines the effects of disclosure on decision-making (examples include Bertrand and Morse (2011); Stango and Zinman (2011); Salisbury (2014); Seira et al (2017); Adams et al. (2021)). Our paper builds on this literature by showing that voters pay attention to both objective as well as subjective information provided on bond ballots.

Last, we add to an economics literature that seeks to understand voter behavior in the United States. On the theory side, voter turnout models include both a median voter model (see Downs (1957)) and a probabilistic voter model (see Enelow and Hinich (1982), Ledyard (1984), Lindbeck and Weibull (1987)). On the empirical side, numerous studies examine various factors impacting votes or elections, such as socioeconomic factors (Blank 1974), the internet (Falck et al 2014), geographic context (Cantoni and Pons 2022), poll location (Clinton et al 2021), gender of children (Washington 2008), and the "friend and neighbor" bias (Panagopoulos et al 2017). Closest to our paper, Rubenfield and Thomas (1980) study turnout in local school elections, finding that age, number of school-aged children, and direct connection to the school (e.g., as an employee) are positively related to voter turnout. Additionally, Henderson (2015) finds that Democrats are far more likely to support (or vote yes) spending on public schools.

Our analyses on voting disclosure directly piggyback off the existing literature. For example, we examine age (especially oldest and youngest voters, who are least likely to have school-aged children), the presence of Democrats/Republicans, and we proxy for direct connections by using the competitiveness of the associated election. Consistent with the probabilistic model of voting, we hypothesize that if a larger number of voters than usual turn out to represent their parties in close elections (when the number of registered Democrats and Republicans in a district is very close), then

these voters are less likely to have a direct connection to the school are more likely to be less informed about school bond issues. We add to this literature by studying voter decisions to support bond ballots and their decisions regarding certain features of the bond ballot such as the mention of specific repairs needed or the more general mention of technology.

III. Data

For our analysis, we compile and combine several data sets: bond ballot data, bond issuance data, school district characteristics data, school district outcome (i.e., test scores and home prices) data, and voter registration data.

First, we collect bond ballot data from the California Secretary of State's website from 1995 to 2019. In California, voters approve general obligation bond (GOB) issuances via a referendum, and once approved, districts borrow the total authorized amount over time in separate issuances (series). For example, if in 2003, voters authorized $100 million, the district might issue as follows: $30 million in 2004 (bond series 1), $45 million in 2007 (bond series 2), and $25 million in 2009 (bond series 3). Each series is comprised of several individual bonds (average number is 20), each with a unique identifier (i.e., the CUSIP number), face value, coupon, yield, price, and maturity date. We examine bonds at all three levels: the total authorized level, the bond series issuance level, and the individual CUSIP level. After voters authorize a bond, school districts have discretion over both the timing of series issuance and the terms of the bonds within the series.

Table 1 Panel A summarizes election data (referenda) for 1,256 separate bond proposals. The average authorized amount is $111 million with a median of $40 million. Most proposals were authorized after 2001, when Proposition 39 decreased the required passing cutoff to 55%. Voters approve most bond proposals during the sample period, with an average win percentage of 68%. Further, bond proposals are much more likely to pass after Proposition 39. In addition to the voting outcomes, we also collect the full text displayed on the ballot itself (see Figure 3 for an example).

Turning next to the bond series issuance data, provided by the state of California, Table 1 Panel B reports data for 2,591 unique bond series. We hand-match bond series data to the ballot data using school district and year information. The mean total issuance per series is $27 million (about 25% of the $111 million authorized from Panel A), with a median of $14 million. The average yearly interest cost is 4.5%. About 35% of series include at least one capital appreciation (i.e., zero-coupon) bond (CAB). About 65% of series include at least one insured bond. The median series has high

credit quality with a Standard & Poor's rating of "A" (not tabulated). Total fees for each series average roughly 2.61% of face amount, or $382,000; underwriting fees are the largest cost, followed by adviser, counsel, and credit enhancement fees

Table 1 Panel C summarizes school district characteristics, based upon data released by the state of California. The average school district has 7,212 pupils, with a median of 3,301. About 42% of districts are classified as Unified: a combined high school and elementary school district. Of the remaining districts, 11% are high school districts and 47% are elementary school districts. Another way to classify districts is by city (46%), suburb (21%), town (14%) or rural (19%). These definitions are based on economic activity, geographic dimension, and population density, as determined by the National Center for Education Statistics. The average school district in the sample provides free or reduced-price lunches to one-third of its pupils, and just over half of its pupils are non-white. These characteristics vary greatly across districts. For example, the 25th and 75th percentile of free/reduced meals are 9.3% and 53.7% respectively.

Table 1 Panel C also reports outcomes data: home prices from Zillow and standardized test scores from the state of California. The median home price is $378,186, while the 75th percentile is much higher at $616,518. Table 1 also reports several variables related to standardized test scores. As background, the Academic Performance Index (API) is a transformed number based on the California Standards Test (CST) and California High School Exit Exams (CAHSEE). Instead of averaging raw test scores, the API normalizes scores by comparing a school's performance to its peers based on pupil demographics like race and parental income. All schools have a target index of 800, and the score ranges from a low of 200 to a high of 1000. Since California stops reporting API data in 2013, we collect other proxies of pupil achievement beginning in 2014, including the fraction of pupils who meet state minimum achievement standards. The average API in our sample is 744, and the average percent of pupils who do not meet standards is 30.7%.

Lastly, Table 1 Panel D presents summary statistics for our voter registration data, gathered from voter registration statistics published by the state of California for each state and year. For each election, we gather information on: percent registered as Republican/Democrat, percent registered

by age group[3], total number of eligible voters, and total number of registered voters[4]. On average, there are 296,200 registered voters per county; and since there are several very large counties like Los Angeles, the median is just 90,800 voters. Usually, Democrats are the dominant party, although races can be quite competitive; on average, 39.6% (36.1%) of voters are registered Democrats (Republicans). In our analyses, based on the probabilistic voting literature (see Enelow and Hinich (1982), Ledyard (1984), Lindbeck and Weibull (1987)), we hypothesize that competitive races (defined as races in which the percent of Democrats and Republicans are less than 5% apart) bring in additional voters, who come to vote on headline issues but may be less interested in or less informed about school bonds. In contrast, voters who always turn out to vote on school bonds may be better informed, as they are more likely to have direct connections to the school (Rubenfield and Thomas (1980)). In addition, older constituents make up a larger portion of the voting population; 10.9% (25.3%) of voters are between 17 and 25 years old (older than 66). Finally, the average county in California is reasonably engaged in the voting process, with 74.3% of all eligible voters registered to vote.

IV. The Positive Effects of Passing Education Bonds

As Panel B of Figure 2 shows, as of 2018 roughly $700 billion USD of outstanding U.S. education municipal bonds required voter approval, and this volume has steadily increased over time. Given this large magnitude of bond financing—the costs of which are ultimately borne by U.S. taxpayers—a first order question looms: do these bonds improve real outcomes for issuing school districts? Further, because education bonds often fund specific projects such as building new gyms, fixing leaky ceilings, or removing asbestos, we examine whether current public voting mechanisms appear to select the most potentially beneficial bond proposals. Just as with corporate bonds, it may be that not all funded projects are ultimately outcome-improving.

While we cannot completely answer these questions, in this section, we provide evidence that (1) passage of education bonds appears to improve test scores and home prices for issuing districts, and that (2) voting thresholds affect bond pass rates, yet thresholds are sometimes arbitrary and

[3] Importantly, information on voter age is only provided from 2018 onwards. To use this variable in our regressions, we assume that age composition does not change significantly within a county over time, and we backfill the age variables using the year 2018 for each county.

[4] If both information on the primary and general election is published, then we only use information from the general election. In addition, the website contains multiple reports per election, as the numbers are often updated. We take the last report before each election, for the most up-to-date information.

potentially too strict. Notably, when California lowered its voting threshold from 66.7% to 55% in 2001, school districts passed significantly more bonds which continued to improve real outcomes.

IV. A. Correlations between Bond Passage, School Characteristics, and Outcomes

We begin by examining school district characteristics by bond passage rates. Table 2 Panel A reports averages of key variables at the school district level, dividing districts into four categories, those that: always pass bonds (400 districts represented in Column 2), sometimes pass bonds (200 districts represented in Column 3), never try to pass bonds (106 districts represented in Column 4), or try but never succeed in passing bonds (24 districts in Column 5). Small rural districts are less likely than their urban counterparts to even propose a bond ballot, implying that these districts may have other sources of funding or might be concerned about the potential marketability of their bonds. Districts with mixed ballot success have the most students and are often Unified districts (combined elementary and high school districts). These districts tend to ask for funding more often than others, likely due to their larger size and more diverse funding needs. Finally, school districts that always succeed at passing bonds are more likely to be urban, less likely to be Unified, and are smaller than those districts with mixed success. This finding implies that districts with the most ballot success may have more specific needs for more homogeneous groups of students (either elementary or high school but not both together).

Turning next to real outcomes, increased bond passage is positively correlated with home prices and test scores. For example, districts that always succeed in passing bonds have the highest home prices, highest standardized test scores (API), and the highest proportion of students that meet or exceed educational standards. These results are consistent with a higher commitment to education funding and general wealth of the district: the districts that always pass bonds also pay more in property taxes and spend more capital. Examining state level funding, which is separate from education bond issuance, wealthy districts that always pass bonds receive the least state-level new construction funding (which is prioritized for underprivileged districts). Paradoxically, these wealthy districts also receive the most state funding for modernization (which they must apply for and is distributed on a first-come first-served basis).

Finally, we perform univariate t-tests on this sample. Panel B of Table 2 reports the averages of key variables for the (1) 600 districts that issued at least one bond over our sample, versus the (2) 130 districts that never issued a bond over our sample. Importantly, Column 4 tests whether bond

passage is significantly correlated with differences in the observed variables. Overall, the findings are consistent with Panel A. School districts that issue at least one bond are significantly larger and more (less) likely to be urban (rural). In addition, students from bond-issuing districts have homes that are worth $200,000 more on average, have higher standardized test scores (API), and are more likely to be meeting academic standards. In contrast, they have a 0.3% higher chance of dropout, likely reflecting their larger size. Finally, bond-issuing districts significantly collect more in property taxes (about $1,000 more per year) and spend significantly more as well.

IV. B. Examining the Effects of Bond Passage using a Regression Discontinuity Design

Using bond ballot data at the district level, we perform a more rigorous analysis relating bond passage to real outcomes. We employ a regression discontinuity design to account for omitted variables, such as parental education or voter sophistication, which may be positively correlated with both bond passage and student performance. In this analysis, we group bonds into subsets by small bands both below and above the bond passage threshold. In doing so, we assume that the districts who narrowly win versus narrowly lose bond ballots are not very different.

In Table 3, we estimate the following for each bond measure in district i and time t:

$$Y_{it+k} = \alpha + \beta_1 pass_{it} + \beta_2 margin_{it} + \beta_3 X_{it} + \beta_4 Y_{it} + \varepsilon_{it}$$
$$where\ -b < margin\_it < b;\ b \in \{30\%, 20\%, 10\%\}$$

The outcome variable Y is one of the following, measured k years in the future: local capital spending, API (test scores), or home prices. We restrict our sample to bond measures using the 55% cutoff for uniformity (these are bonds issued after 2001), and due to our short horizon, we drop the small number of districts that waited over 5 years to issue their first bond. $Margin$ is the difference between the percent of yes votes received and the threshold for passing; for example, if a bond measure passed with 60% yes votes, it would have a margin of 5%. Pass is a dummy equal to one if the bond ballot was approved. For simplicity, we use a rectangular kernel (i.e., no weighting) and use three different bandwidths around the cutoff: 30%, 20%, and 10%. If passing a bond leads to significant real outcome improvements, $\beta_1 > 0$. β_2 captures the relation between bond ballot popularity and outcomes, β_3 controls for observable school district characteristics from Table 2, and β_4 controls for the current level of the outcome variable.

Table 3 presents results: bond passage increases future local spending, improves future test scores, and increases future home prices. In each panel, Columns (1)-(6) correspond to outcomes

measured 1 to 6 years after the ballot vote. Starting with Panel A, when a measure is passed, the school district's capital expenditures significantly increase over the next two years. This effect is consistent across all three bandwidths. Examining the smallest band (10%) around the voting cutoff of 55%, expenditures significantly increase for up to three years after bond passage, with the strongest effect at two years. This timeline is consistent with typical bond issuance schedules. The average bond ballot issues its first affiliated bond 1.3 years after approval; further, 75% of bond ballots issue their first bond within 3 years after approval. Overall, the findings in Table 3 provide evidence that districts use bond funding to invest in schools on a timely basis.

Next, Panel B examines school districts' changes in test scores following the passage of a bond ballot. The first two bandwidths (30% and 20%) show significant improvements in API scores following bond passage. The effect builds and is strongest three years later (Column 3) and persists for up to six years. However, the smallest band of 10% shows no effect. The API measure is standardized each year by the state of California based on a set of peer schools with similar student demographics. Thus, it may be difficult to compare API score growth across school districts with different student demographics. To address this issue, the next analysis examines these effects *within* school districts.

Finally, Panel C examines how bond passage affects home prices in the district. School district quality is an important determinant of housing values. If residents are aware of bond passage and they expect that capital from bonds will improve the quality of their school district, then housing values could also increase. Indeed, across all three bandwidths considered, home prices rise up to three years after bond passage. Similar to the study of local spending shown in Panel A, the effect is strongest in the second year. This result suggests that the positive effect of bond passage is incorporated into housing prices fairly quickly.

IV. C. Examining the Effect of Lowering the Voting Threshold

While the prior section provides plausible causal evidence that approving bond ballots improves real outcomes, the question remains: Does the ballot process correctly select bonds that fund positive outcomes (and reject bonds that do not)? We address this question by examining whether changing the rules of the voting process impacts bond pass rates, and if so, whether the bonds accepted *as the result of the rule change* improve real outcomes.

One naïve way to measure the effect of voting rules on real outcomes is to regress outcome variables on a dummy variable for a bond measure passing. However, there are many unobserved characteristics of the district that could affect both bond passage and future outcomes. In addition, many districts smooth their issuance so that the average amount of bonds *issued* every year is relatively smooth, even though the amount *authorized* by a yes vote can be staggered and lumpy. Due to smoothing, a simple OLS regression may not accurately capture how regular, repeated access to debt markets affects educational outcomes. To address these issues, we use both a California law change in 2001 that lowered voting thresholds, called Proposition 39, and a triple difference-in-difference design.

We begin by documenting the effect of the law change on bond passage. Proposition 39 was enacted in 2001 and lowered the voting threshold for education bond passage from 66.67% of yes votes to 55%. In other words, Proposition 39 had a measurable effect because it suddenly allowed districts to pass bond referenda that would have been marginally rejected in prior years, and as a result, to gain access to increased levels of future capital funding. To test the effect of Proposition 39 on overall bond passage, we estimate the following regression for each bond ballot i and year t in Column 2 of Table 4:

$$Pass_{it} = \beta_1 post2001_t + \beta_2 year_t + \beta_3 year_t^2 + \beta_4 \overrightarrow{X_{it}} + \varepsilon_{it}$$

where *Pass* is a dummy equal to one if the bond ballot was passed, *year* and $year^2$ capture quadratic time trends, and X is a vector of school district control variables. Under the hypothesis that Proposition 39 improved the likelihood of bond passage by loosening the voting threshold, we would expect $\beta_1 > 0$. Consistent with our hypothesis, we find that after Proposition 39, bonds are unconditionally 25% more likely to pass. This increased likelihood of bond passage is also depicted in Figure 4.

Next, to capture the heterogenous effects of the regulation change, we split the full sample of school districts into a "treated group," which garnered between 55% to 66.67% of yes votes on average before 2001 (in other words, they are the most likely to have bond ballots that would change from failing to passing as a direct result of Proposition 39) and a "control group,"[5] which garnered

[5] Most of this group consists of districts with an average greater than 66.67% of yes votes across all bond ballots passed prior to 2001. In other words, the control group consists of districts that almost always passed their bonds, and thus, are likely to continue passing bonds after proposition 39.

less than 55% or greater than 66.67% of yes votes on average before 2001.[6] To test the effect of Proposition 39 on the treated group, we estimate the following equation for each bond ballot i and year t in Column 4 of Table 4:

$$Pass_{it} = \beta_1 post2001_t * Treated_i + \beta_2 post2001_t + \beta_3 Treated_i + \beta_4 year_t + \beta_5 year_t^2 + \beta_6 \overrightarrow{X_{it}} + \varepsilon_{it}$$

We hypothesize that the regulation (*post 2001 dummy*) should mostly affect the treated group, so $\beta_1 > 0$. Indeed, the effect of the regulation change is primarily driven by the treated group. While the treated group is significantly less likely to pass bonds (relative to control group) over the entire period, they are significantly more likely to pass bonds following Proposition 39 in 2001.

Finally, we examine the differential effects of bond passage for the treated districts, which were affected by Proposition 39 by using a triple difference-in-difference specification. For each district i and year t, we estimate:

$$Y_{it+k} = \alpha_i + \beta_1 Treated_i + \beta_2 post2001_t + \beta_3 passed_i + \boldsymbol{\beta_4 Treated_i * post\ 2001_t * passed_i} + \beta_5 Treated_i * post\ 2001_t + \beta_6 post\ 2001_t * passed_i + \beta_7 Treated_i * passed_i + \beta_8 \overrightarrow{X_{it}} + \beta_9 year_t + \beta_{10} year_t^2 + \beta_{11} Y_{it} + \varepsilon_{it}$$

As in Table 3, outcome variable *Y* is one of the following: local capital spending, API (test scores), or home prices. Since it can take years for districts to issue bonds after a successful vote, and since infrastructure projects may affect educational outcomes with a lag, we examine outcomes over the next six years. $Treated$ is a dummy variable equal to 1 if the school district belongs to the treated group, and 0 otherwise. $Post\ 2001$ is equal to one if the year is 2001 or later, when Proposition 39 came into effect. We control for a quadratic time trend using $year$ and $year^2$, school district fixed effects using α, and school district characteristics using vector X_{it}. By including district fixed effects we are comparing *school district's outcomes in a given year to the same district's outcomes in past years*—a "within-district" effect. Hence, if bonds passed due to Proposition 39 lead to better outcomes, relative to bonds passed regardless of Proposition 39, then we expect $\beta_4 > 0$.

[6] Table A2 in the Appendix summarizes variables by treated and control group. The untreated group tend to be wealthier districts that pass more bonds (i.e., have more long-term debt) and spend more capital per student.

We start by examining the effect of Proposition 39 on local capital expenditures in Table 5A, where we find that bonds passed by treated districts after Proposition 39 lead to smaller local capital expenditures over the next three years, *relative* to bonds from untreated districts after Proposition 39. As in Table 3, the time frame of three years aligns with the observed timing of capital issuance. Furthermore, as seen in Table A2, treated districts are generally smaller and spend less; thus, it is reasonable that they also ask for smaller bonds and also spend less once the bonds are passed. In sum, this analysis suggests that marginal bonds passed due to lowering the voting threshold are smaller and less costly to taxpayers.

Table 5B examines the effect of Proposition 39 on average test scores. The marginal bond ballots passed after Proposition 39 lead to significantly higher test scores than the ballots that would have been passed anyway. Combined with Table 5A, this result suggests that these smaller, marginal bonds cost taxpayers less yet generate better educational outcomes. While the effect is strongest three years after bond passage and diminishes over time, the positive effect persists over the next six years. A plausible interpretation of this result is that California's voting threshold of 66.67% was arbitrary and too strict prior to 2001; lowering this threshold allowed more bonds to pass with positive effects on the school districts.[7]

Finally, Table 5C examines the effect of Proposition 39 on home prices. Home prices rose more for treated districts that passed bonds after Proposition 39, *relative* to control districts that passed bonds but were unaffected by Proposition 39. This heterogeneous effect occurs in the long run, since the associated coefficients are most significant three to six years after bond passage. Overall, Table 4C combined with Table 5B suggest that lowering the voting threshold in 2001 was a valuable policy change that allowed districts to pass additional bonds that improved both test scores and home prices.

While the bond passage voting threshold is set by law, the choice to pass a bond rests with taxpayers at the polls. In an ideal world, voters gather all relevant information and carefully research their voting decisions; in reality, voters are time-constrained and subject to a variety of factors that might influence their choices. For example, at the polling place, voters are presented with limited information in the text of the bond ballot. In addition, votes likely reflect personal characteristics

[7] Note that we cannot quantify the benefits, so it is impossible to do a cost-benefit analysis here. In other words, we cannot say for certain whether the costs of the bond are ultimately worth the benefits. However, if one assumes that the bonds passed prior to Prop 39 are positive NPV, then the marginal bonds passed after Prop 39 appear to cost less but benefit more. Thus, they should be positive NPV as well.

such as age, income level, whether voters have children in the school systems, intrinsic beliefs about educational spending, and political party affiliation. In the next section, we examine bond ballots and voter characteristics to understand what drives votes at the polls.

V. Voter Demographics Affect Bond Ballot Turnout and Passage

V. A. Voter Turnout

Our previous analyses and much of the existing literature finds that passing education bonds positively impacts real outcomes for districts that issue them. However, bonds require voter approval to be issued. In this section, we seek to explain both voter turnout and bond ballot success using voter characteristics.

We begin by investigating the number of votes cast on bond ballots. In Table 6, we estimate the following regression for each bond ballot i and year t:

$$Ln\ Num\ Votes_{it} =$$
$$+\beta_1 \overrightarrow{Demographics_{it}} + \beta_2 num\ registered_{it} + \beta_3 55\ pct\ threshold_i +$$
$$\beta_4 \ln amt\ authorized_i + \beta_5 \overrightarrow{X_{it}} + \gamma_t + \varepsilon_{it}$$

where the dependent variable is the log number of votes cast on the bond ballot. The key explanatory variables are voter characteristics given in the vector "$Demographics,$" including: percent registered as Democrat; percent registered as Republican, a dummy for a politically competitive year (equal to one if percent Democrat and percent Republican differ by less than five percent), percent of young voters (age below 25), and percent of elderly voters (greater than 66 years old). The youngest and oldest groups of voters are least likely to have children in public schools, and thus, we argue that these groups would experience a smaller direct benefit from school bond passage. In addition, we also consider the size of the county, proxied by the log total number of residents in the county registered to vote. Finally, we control for whether the voting threshold was 55% ("*55 pct threshold*"), the total amount of funding that the bond ballot authorizes ("*ln amt authorized*"), a vector of school district characteristics ("*X*"), and year fixed effects ("γ_t").

In Column 1 of Table 6, the log total number of registered voters is strongly and positively related to the number of votes cast. Column 2 adds school characteristics and finds that the number of votes cast is higher in bigger (proxied by higher enrollment) and wealthier (proxied by higher property

taxes) school districts. The number of votes cast is lower in Unified counties and counties with more non-white and non-Asian students. After adding these controls, the number of registered voters no longer predicts the number of votes cast.

Column 3 of Table 6 shows that a higher percent of either Democratic or Republican voters reduces the total number of votes. This finding suggests that in districts dominated by either party, residents may be less likely to vote because they feel more confident in election outcomes or feel that their vote won't make much difference. However, as seen in Column 4, competitive districts, which contain roughly equal numbers of Republican and Democratic voters, do not differ in the number of ballot votes cast. One potential explanation for this result is that in these districts, more voters turn out to represent their party and not necessarily to vote on school bond decisions. Thus, on net, there is no effect on the number of votes on the school bond ballot.

In Column 5 of Table 6, younger voters are less likely to vote, although the result is not statistically significant. On the other hand, voters older than 66 are significantly more likely to vote on the bond ballot. These findings are consistent with a story of voter sophistication, as well as prior literature showing that older residents are more involved in school politics, have seen school bonds on prior ballots, and may feel more informed to cast a vote (Rubenfield and Thomas 1980). Finally, the last column of Table 6 combines all the demographic and school district characteristics in a multivariate regression. The strongest predictors of the decision to vote are (1) the percentage of Democrats/Republicans (a higher percent of either reduces voter turnout) and (2) the percentage of voters over the age of 66 (a higher percent implies higher voter turnout.)

V. B. Success in Bond Passage

Next, we predict the success of the bond ballot, or the percent of yes votes received. Table 7 estimates the following regression for each bond ballot i and year t:

$$\%\ Yes\ Votes_{it} =$$
$$\beta_0 \%Participation + \beta_1 \overrightarrow{Demographics_{it}} + \beta_2 \ln num\ votes_{it} + \beta_3 55\ pct\ threshold_i +$$
$$+ \beta_4 \ln amt\ authorized_i + \beta_5 \overrightarrow{X_{it}} + \gamma_t + \varepsilon_{it}$$

The dependent variable is the percent of total votes in favor of passing the education bond. A key new independent variable is "*% Participation*" which is the total number of registered voters divided

by the total number of eligible voters. We expect that this variable will be higher in areas where residents are more attentive or engaged with voting issues. While all other independent variables are the same as in Table 6, we replace the log number of registered voters in the county with the log number of votes received (the dependent variable in Table 6), noting that this variable is more relevant to the voting decision.

We visually preview our findings in Figure 5, which shows binscatter plots with the percent of yes votes on the y-axis, and each of the key explanatory variables on the x-axis. Figure 5 indicates a strong positive (negative) and linear relationship between percent registered Democrats (Republicans) and yes votes. This finding suggests that Democratic voter values align with public education funding and issuing education municipal bonds, consistent with prior literature and voter surveys (Henderson (2015) and Brookings (2015)). Next, there is a negative relation between voter age and yes votes—both young and old voters reject school bond ballots more often than the comparison group of 25-67 year olds. This finding is consistent with the hypothesis that these constituent groups are the least likely to directly benefit from an education bond passage, since they are the least likely to have school-aged children. Finally, Figure 5 indicates a positive, linear relationship between our proxy for engagement (ratio of registered voters to eligible voters) and bond outcomes, suggesting that more engaged districts are more likely to approve a bond.

Table 7 shows regression results. A higher percent of resident participation (Column 1), a lower percent of Republicans (Column 2), a politically non-competitive election (Column 3), and a higher proportion of voters ages 25-67 (Column 4) are associated with a higher percent of yes votes. Combining all explanatory variables together in Column 5, the most significant (negative) predictor of yes votes is the percentage of voters over age 66.[8] As in Table 6, these voters are heavily engaged in bond ballot voting; combined with their lower likelihood of having school-age children, they more often choose to vote no on school bond ballots.

In sum, politically non-competitive elections lead to lower voter turnout. Further, these non-competitive elections tend to be successful in Democratic and unsuccessful in Republican districts. Additionally, older voters are significantly more likely to vote in these elections, frequently voting against bond issuance.

[8] It is important to note that percent Republican and Democrat are strongly, negatively correlated (84%). If we just put in one of these variables, but not both, they remain highly significant in the multivariate specification.

In addition to voter composition, the information contained in the text of the ballot can affect voter decisions. Thus, in the next section, we study various aspects of the ballot text. Further, we test whether voters with differing demographics interpret textual ballot information differentially.

VI. Examining the Ballot Text

Suppose that you are a local California resident at the polls, trying to decide whether to approve a school bond without having reviewed any other information. As Figure 3 demonstrates, the ballot text does not provide much detail about the bond itself, which can make the decision very difficult. In most cases, the bond ballots contain the following:

- Bottom line number of how much money will be borrowed, at a maximum
- General description of what the money will be used for
- Boiler plate language about committees and oversight for use of the funding

Starting in 2018, bonds ballots in California are required to disclose the expected tax burden in the form of a dollar cost per assessed $100 or $100,000 of property values. This disclosure was optional prior to 2018, and perhaps unsurprisingly, this tax data was seldom disclosed. In this section, we parse the ballot text to explore which aspects matter most to voters, and whether the ballot text matters differentially across voter types. Interestingly, we find that while voters internalize some costs (for example, the promise of no tax burden) and some benefits (such as HVAC systems); they are also influenced by parts of the ballot that offers no hard information, such as its length or use of descriptive words like “deteriorating” or “dilapidated.”

Because most financial decisions boil down to weighing the costs versus benefits, we begin by testing whether voters pay attention to the reported costs and expected benefits on the bond ballot. Then, we turn to other aspects of the ballot text, including length, mention of budget cuts, and descriptive language.

VI. A. Do Voters Care about Disclosed Bond Costs?

We begin by examining disclosures related to expected costs. Expected borrowing costs such as yields and underwriting fees are not reported on ballots. While school districts often hire underwriters to estimate costs and design the basic bond structure (e.g., maturity, coupon, special features) of proposed bonds ahead of the ballot, these detailed projections are usually presented in brochures distributed before the election, and there is no guarantee that voters read them before

voting day. Even if voters have read these brochures, actual costs can deviate substantially from projected costs. For instance, the district could use a different underwriter or adviser. Furthermore, bonds are often issued with a lag meaning that costs may have changed due to inflation or demand factors, and interest rates may have changed either due to macro factors or district specific credit factors.

The ballot text usually discloses expected costs in two ways. First, some ballots explicitly state "no tax increase" in the near future. Second, since education bonds are repaid through local property taxes, bond ballots sometimes report the expected tax burden for the voter. This tax expense is always presented as a dollar cost per $100 or $100,000 of assessed property value; and it was voluntarily (and rarely) disclosed before 2018 but required in 2018 and later.

Tables 8A and 8B estimate the following models for bond ballot i and year t:

$$\%\, Yes\ Votes_{it} =$$
$$\beta_0 No\ Tax_i + \beta_1 No\ Tax_i * \%Participation_{it} + \beta_2 No\ Tax_i * \overrightarrow{Demographics_{it}}$$
$$+ \beta_3\, \%Participation_{it} + \beta_4 \overrightarrow{Demographics_{it}} + \beta_5 \overrightarrow{X_{it}} + \gamma_t + \varepsilon_{it}$$

, or

$$\beta_0 Assessed_i + \beta_1 Assessed_i * \%Participation_{it} + \beta_2 No\ Tax_i * \overrightarrow{Demographics_{it}}$$
$$+ \beta_3 \%Participation_{it} + \beta_4 \overrightarrow{Demographics_{it}} + \beta_5 \overrightarrow{X_{it}} + \beta_6 year_t + \beta_7 year_t^2 + \varepsilon_{it}$$

where the dependent variable is the same as in Table 7, but the key independent variables are "*No Tax*," a dummy equal to one if the ballot promised no tax increases, and "*Assessed,*" a dummy equal to one if the ballot discloses estimated tax burden. If voters are deterred by expected tax costs of issuing a bond, then we would expect $\beta_0 < 0$. In addition, we interact the cost disclosures with voter characteristics and participation rates to examine heterogeneous effects. Here, "X" is a vector of controls including both bond (e.g., ln authorized amount) and school district characteristics. Finally, since most districts did not disclose the burden prior to 2018, "*Assessed*" is strongly correlated with the year 2018 dummy. Thus, in the second equation, we control for quadratic time trends with "$year$" and "$year^2$" rather than employing individual year fixed effects.

Column 1 of both Tables 8A and B shows that voters respond negatively to a stated tax burden. Voters are more likely to approve a ballot with a "*no tax increase*" promise and less likely to approve

a ballot that discloses expected tax costs. In addition, contingent on disclosing a tax cost, when we also include the estimated dollar amount of the tax burden (see Appendix Table A3), it has either a null effect or a positive effect on percent of yes votes. This result may occur because the estimated dollar tax burden looks quite small (median is $30 per $100,000 of house value) and falls within a narrow range (25th and 75th percentiles are $30 and $57 per $100,000 of house value). In sum, while voters seem to care about costs, they be less sensitive to the cost amount.

Columns 2 through 6 of Tables 8A and B provide evidence that different types of voters interpret cost information differently. For these tables, it is important to note that districts with bond ballots promising no tax increases issued zero-coupon bonds with very long (up to 40 year) maturities. These long duration bonds have very high yields. Issuance of these bonds drew national attention and reflected poorly on the districts that issued them; today, these bonds are heavily restricted by the State of California, and as a result, are rarely issued.

Thus, the ballot promise of no tax increases should raise some red flags for sophisticated or attentive voters. This prediction aligns with our results. Younger, less-experienced voters (Column 2) are especially encouraged by the promise of "no taxes"; while older, more-experienced voters (Column 3) or districts with more engaged voters (Column 4) are less likely to be encouraged by "no taxes." In addition, there is a weak but positive effect in Column 5, suggesting that in districts where the overall election is competitive and voter attention may be on other issues, the promise of "no taxes" is also encouraging.

Unlike a blanket promise of "no tax increases," disclosure about the expected dollar tax burden per property value provides specific and useful information. In Columns 2 through 6 of Table 8B, almost all districts are similarly discouraged by the inclusion of this cost information, although districts that tend to be more attentive are especially deterred (Column 4), while districts that have competitive general elections, which may be drawn to other issues (Column 5), are less deterred.

Overall, when expected cost information is presented on bond ballots, voters appear to notice. The promise of "no tax increases" helps some ballots to pass, while the explicit disclosure of expected tax costs is associated with higher failure rates. In the next section, we examine the ballot-disclosed benefits to see how voters respond to these disclosures.

VI. B. Do Voters Respond to Disclosed Bond Benefits?

This section examines disclosed bond benefits. We group bond benefits into three broad categories: (1) specific fixes, such as remediating mold or installing HVAC, (2) improving technology or modernizing buildings, and (3) new construction. Tables 9A and B present results for categories (1) and (2). For space reasons, and since there are no significant findings, we briefly discuss (3) but present the table in Appendix Table A2.

Tables 9A and B begin by estimating the following regression for ballot i and year t:

$$\%\, Yes\ Votes_{it} =$$
$$\beta_0 \overrightarrow{Fix_i} + \beta_1 \overrightarrow{Fix_i} * \%Participation_{it} + \beta_2 \overrightarrow{Fix_i} * \overrightarrow{Demographics_{it}} + \beta_3\, \%Participation_{it}$$
$$+ \beta_4 \overrightarrow{Demographics_{it}} + \beta_5 \overrightarrow{X_{it}} + \gamma_t + \varepsilon_{it}$$

or

$$\%\, Yes\ Votes_{it} =$$
$$\beta_0 Tech_i + \beta_1 \overrightarrow{Fix_i} * \%Participation_{it} + \beta_2 Tech_i * \overrightarrow{Demographics_{it}} + \beta_3\, \%Participation_{it}$$
$$+ \beta_4 \overrightarrow{Demographics_{it}} + \beta_5 \overrightarrow{X_{it}} + \gamma_t + \varepsilon_{it}$$

The dependent variable and most independent variables are the same as in Table 8A. However, rather than testing a "*no tax increase*" dummy, we test a vector of dummies equal to one if the ballot mentions a specific fix in Table 9A, and whether the ballot mentions improvement of technology in Table 9B. The list of specific fixes include addressing fire safety, improving water quality, repairing or building playgrounds, ensuring earthquake safety, addressing mold, fixing leaks, and fixing the HVAC. If mentioning any of these benefits encourages bond approval by voters, then we would expect $\beta_0 > 0$.

Looking at Column 1 of Table 9A, the mention of specific repairs has no significant impact on the percentage of yes votes received on the bond ballot, except for "*HVAC*." On the bond ballot, the mention of "*HVAC*" significantly increases the percent of yes votes by 1.6%. Given that California has a warm climate and students may have a hard time focusing with a broken air conditioning system, it is reasonable that voters respond most positively to fixing and improving HVAC systems. Furthermore, older voters (Column 3) seem less motivated by the mention of HVAC, while districts with competitive elections (Column 6) are more motivated by the mention of HVAC. One reason for the latter finding may be that, in districts where the election is competitive and voters are mostly

turning out to represent their party and not necessarily vote for school bonds, the mention of HVAC is most salient to them.

Next, looking at Column 1 of Table 9B, the mention of technological improvements has no effect on the overall percent of yes votes. However, Columns 2 through 6 show that technology appears to be a fairly divisive topic with significant heterogeneity in how different voters respond to this information. In particular, a higher population of younger (older) voters is associated with significantly higher (lower) voter approval when "technology" is mentioned. This result may occur because technology has become more integrated into society with each generation, such that younger generations value technology improvements more. In Columns 4, districts that more actively participate in voting appear to value technology less; while in Column 6, districts that are highly competitive value technology more. Finally, as shown in Table A2, voters do not respond to the mention of new construction.

Overall, voters respond to a very small number of specific benefits. All voters appear to favor HVAC fixes, while younger voters value technology improvements. Now, having examined both the costs and the benefits disclosed on the bond ballot, we test whether there are other, less-informative factors that also drive votes.

VI. C. Do Voters Respond to Other Disclosures or Ballot Characteristics?

This section examines three other considerations surrounding bond ballots that might influence voters. First, controlling for actual planned repairs named on the ballot, we test whether additional use of needy, descriptive words influence voters' decisions. Next, we test whether longer ballots (ballots with more words) are more likely to pass. Finally, in years when the entire state of California underwent budget cuts, we test whether districts that specifically mentioned the state-wide "budget cuts" were able to secure more yes votes.

Tables 10A-C estimate the following regressions for ballot i in year t:

$$\%\, Yes\ Votes_{it} =$$

$$\beta_0 Desc_i + \beta_1 Desc_i * \%Participation_{it} + \beta_2 Desc_i * \overrightarrow{Demographics_{it}} + \beta_3\, \%Participation_{it} + \beta_4 \overrightarrow{Demographics_{it}} + \beta_5 \overrightarrow{X_{it}} + \beta_6 \overrightarrow{Fix_i} + \gamma_t + \varepsilon_{it}$$

Or

$$\%\, Yes\ Votes_{it} =$$

$$\beta_0 Length_i + \beta_1 Length_i * \%Participation_{it} + \beta_2 Length_i * \overrightarrow{Demographics_{it}} + \beta_3 \%Participation_{it} + \beta_4 \overrightarrow{Demographics_{it}} + \beta_5 \overrightarrow{X_{it}} + \gamma_t + \varepsilon_{it}$$

Or

$$\%\, Yes\ Votes_{it} = \beta_0 Budget + \beta_1 Budget * \%Participation_{it} + \beta_2 Budget * \overrightarrow{Demographics_{it}} + \beta_3 \%Participation_{it} + \beta_4 \overrightarrow{Demographics_{it}} + \beta_5 \overrightarrow{X_{it}} + \gamma_t + \varepsilon_{it}$$

The dependent variable and most independent variables are the same as in Tables 8 and 9. The main difference is in the explanatory variables. In Table 10A, "*Desc*" is a dummy equal to 1 if the ballot used one of the following words: aging, hazardous, outdated, crowded, inadequate, rehabilitate, or deteriorating[9]. Since certain repairs, such as mold or HVAC, are more likely to be associated with these words and we do not want to pick up the effect of the repair itself, we also control for a vector of specific repairs. In Table 10B, "*Length*" is a continuous variable calculated as the total number of characters on the ballot. Finally, in Table 10C, "*Budget*" is equal to one if the ballot specifically mentions the statewide budget cuts.

Starting with Column 1 of Table 10A, even after controlling for specific repairs, the use of needy, descriptive words significantly increases the percent of yes votes by 1.5% on average. This finding suggests that while descriptive words do not offer additional, concrete information, voters respond to the greater sense of urgency suggested by the descriptions. In Column 6, consistent with the theory that districts with more competitive elections focus more attention on other issues, more competitive districts are more likely to be swayed by urgent-sounding descriptions.

Next, in Column 1 of Table 10B, longer ballots lengths are associated with a higher fraction of yes votes. While ballot length does not offer specific information on its own, this finding suggests that on average, voters interpret the presence of more words as signaling either higher urgency or better information. In Column 3, older voters in particular appreciate longer ballots; and in Column 6, districts with competitive elections prefer a more concise ballot.

In the years 2010 and 2012, statewide budget cuts reduced the amount of funding all schools received in California. While this announcement was public and affected all school districts, only some districts mentioned that they sought to "offset state budget cuts" on their bond ballots. In

[9] We test the needy words individually as well, but the results do not appear to be driven by any specific word.

Column 1 of Table 10C, the mention of budget cuts tends to increase voter approval, although it is only significant at the 10% confidence level. Mention of state cuts is more appealing to young voters (Column 2) and districts with less active participation (Column 4), which suggests that voters may not have been as aware of the cuts before reading the bond ballot. Consistent with this result, in more competitive districts, where voters may be turning out to vote for individuals running for office or other political issues, voters are more likely to vote yes if state budget cuts are mentioned.

Overall, our results imply that voters put significant weight on information that is salient but perhaps not as concrete, such as needy descriptions or mention of budget cuts, which appeals to voters' sense of pathos. It is important to note that we cannot say for certain whether the voters' responses are rational or not. For example, schools in hotter climates may need HVACs more and may also be more likely to use needy descriptors. Thus, especially if the voters can observe that the HVACs are more urgent, then they are correct to approve the associated bond ballots at a higher frequency. A priori, the use of words like "aging" can be applied to most schools and do not offer concrete information on its own. Thus, especially combined with the fact that voters do not respond to specific repairs except for HVAC (see Table 9A and B), our results provide suggestive evidence that voters are not always voting in a rational or informed way.

V. Conclusion

Most general obligation municipal bonds in the United States are approved via public ballot. In this paper, we take a close look at the impact that the voting process – including the voting threshold and textual information disclosed on ballots – has on school bond issuance and real outcomes. We find that not only do school bonds improve future test scores and home values for the issuing district, but also that the bar that they must meet for passage may be too strict. Using a policy change in 2001 (Proposition 39) that reduced California's voting threshold from 66.67% to 55% for school bond ballots, we find significant improvements for districts that (1) had trouble passing bonds prior to 2001 and (2) passed a bond after 2001. This result suggests that voting thresholds may not be optimally set to separate valuable bond proposals from others.

Examining 1,228 ballot texts between 1995 and 2020 in California, we find that the limited textual information provided on the ballot impact voters' decisions, and ultimately, bond passage. While voters are less likely to approve bond ballots that mention anticipated tax costs, they are more likely to approve ballots mentioning specific improvements, such as fixing HVAC systems.

Importantly, the specificity of the information is important; for example, a broad mention of "no tax increases" can actually lead to higher interest expenses in the future and attract younger, less-sophisticated voters. Finally, soft information such as descriptive, needy language can take up valuable space and sway voters' opinions.

Ultimately, the findings of our study have real-world relevance because they carry lessons for policymakers, academics, as well as all voting taxpayers. A closer look at the exact costs and benefits disclosed on the bond ballot, as well as any additional extraneous information, may improve bond issuance and school district outcomes. Optimizing ballots' textual information will allow voters who do not have prior knowledge of school bonds, which may be include the majority of voters, to make better informed decisions in the future.

References

Adams, Paul, et al. "Testing the effectiveness of consumer financial disclosure: Experimental evidence from savings accounts." Journal of Financial Economics 141.1 (2021): 122-147.

Admati, A., and P. Pfleiderer. "Forcing Firms to Talk: Financial disclosure Regulation and Externalities." Review of Financial Studies 13 (2000): 479-519.

Ang, A., Green, R. C., Longstaff, F. A., and Xing, Y. (2017). "Advance refundings of municipal bonds." The Journal of Finance, 72(4):1645-1682.

Agarwal, Sumit, Paige Marta Skiba, and Jeremy Tobacman. "Payday loans and credit cards: New liquidity and credit scoring puzzles." American Economic Review 99.2 (2009): 412-17.

Bailey, W., G. Karolyi, and C. Salva. "The Economic Consequences of Increased Disclosure: Evidence from International Cross-Listings." Journal of Financial Economics 81 (2006): 175-213.

Baiman, S., and R. Verrecchia. "The relation Among Capital Markets, Financial Disclosure, Production Efficiency, and Insider Trading." Journal of Accounting Research 34 (1996): 1-22.

Baldassare, Mark. A California state of mind: The conflicted voter in a changing world. Univ of California Press, 2002.

Begley, Taylor A., and Amiyatosh Purnanandam. "Color and credit: Race, regulation, and the quality of financial services." Journal of Financial Economics 141.1 (2021): 48-65.

Bertrand, Marianne, and Adair Morse. "Information disclosure, cognitive biases, and payday borrowing." The Journal of Finance 66.6 (2011): 1865-1893.

Blank, Robert H. "Socio-economic determinism of voting turnout: A challenge." The Journal of Politics 36.3 (1974): 731-752.

Brunner, Eric J. Financing school facilities in California. Governor's Committee on Education Excellence, 2006.

Brunner, Eric J., and Jeffrey M. Vincent. "Financing school facilities in California: A ten-year perspective." Getting Down to Facts II (2018).

Butler, A. W., Fauver, L., and Mortal, S. (2009). Corruption, political connections, and municipal finance. The Review of Financial Studies, 22(7):2873-2905.

Cantoni, Enrico, and Vincent Pons. "Does context outweigh individual characteristics in driving voting behavior? Evidence from Relocations within the United States." American Economic Review 112.4 (2022): 1226-1272.

Chen, Huaizhi, Lauren Cohen, and Weiling Liu. Calling all issuers: The market for debt monitoring. No. w29790. National Bureau of Economic Research, 2022.

Cellini, Stephanie Riegg, Fernando Ferreira, and Jesse Rothstein. "The value of school facility investments: Evidence from a dynamic regression discontinuity design." The Quarterly Journal of Economics 125.1 (2010): 215-261.

Clinton, Joshua D., et al. "Polling place changes and political participation: evidence from North Carolina presidential elections, 2008–2016." Political Science Research and Methods 9.4 (2021): 800-817.

Cornaggia, Kimberly, John Hund, and Giang Nguyen. "The price of safety: The evolution of municipal bond insurance value." Available at SSRN 3266890 (2021).

Cornaggia, Kimberly, John Hund, Giang Nguyen, and Zihan Ye. "Opioid crisis effects on municipal finance." The Review of Financial Studies 35, no. 4 (2022): 2019-2066.

Diamond, D. "Optimal release of information by firms." Journal of Finance 40 (1985): 10711094.

Diamond, D., and R. Verrecchia. "Disclosure, Liquidity, and the Cost of Capital." Journal of Finance 46 (1991): 1325-1359.

Downs, Anthony. "An economic theory of democracy." Harper and Row 28 (1957).

Dougal, Casey, et al. "What's in a (school) name? Racial discrimination in higher education bond markets." Journal of Financial Economics 134.3 (2019): 570-590.

Enelow, James M., and Melvin J. Hinich. "Ideology, issues, and the spatial theory of elections." American Political Science Review 76.3 (1982): 493-501.

Fairlie, Robert W., Alicia Robb, and David T. Robinson. Black and white: Access to capital among minority-owned startups. No. w28154. National Bureau of Economic Research, 2020.

Falck, Oliver, Robert Gold, and Stephan Heblich. "E-lections: Voting Behavior and the Internet." American Economic Review 104.7 (2014): 2238-2265.

Gao, Pingyang. "Keynesian beauty contest, accounting disclosure, and market efficiency." Journal of Accounting Research 46.4 (2008): 785-807.

Gao, P., Murphy, D., and Qi, Y. "Political uncertainty and public financing costs: Evidence from US gubernatorial elections and municipal bond markets." Available at SSRN 1992200 (2019).

Garrett, Daniel G. "Conflicts of Interest in Municipal Bond Advising and Underwriting." Working paper (2020).

Ledyard, John O. "The pure theory of large two-candidate elections." Public choice 44.1 (1984): 7-41.

Linn, Suzanna, Jonathan Nagler, and Marco A. Morales. "Economics, elections, and voting behavior." (2010).

Henderson, Michael B. "How Far Apart Are Democrats and Republicans on School Reform?." Brookings Institution, Brown Center Chalkboard (2015).

Hermalin, Benjamin E., and Michael S. Weisbach. "Information disclosure and corporate governance." The journal of finance 67.1 (2012): 195-233.

Hong, Kai, and Ron Zimmer. "Does investing in school capital infrastructure improve pupil achievement?" Economics of Education Review 53 (2016): 143-158.

Jackson, C. Kirabo, Rucker C. Johnson, and Claudia Persico. "The effects of school spending on educational and economic outcomes: Evidence from school finance reforms." The Quarterly Journal of Economics 131.1 (2016): 157-218.

Jayaraman, Sudarshan, and Joanna Shuang Wu. "Is silence golden? Real effects of mandatory disclosure." The Review of Financial Studies 32.6 (2019): 2225-2259.

Joffee, Marc. "Doubly bound: The costs of issuing municipal bonds." Haas Institute Research Brief. (2016).

Ledyard, John O. "The pure theory of large two-candidate elections." Public choice 44.1 (1984): 7-41.

Lindbeck, Assar, and Jörgen W. Weibull. "Balanced-budget redistribution as the outcome of political competition." Public choice (1987): 273-297.

Loughran, T., and B. McDonald. "When is a Liability Not a Liability? Textual Analysis, Dictionaries, and 10-Ks." Journal of Finance 66 (2011): 35-65.

Melzer, Brian T. "The real costs of credit access: Evidence from the payday lending market." The Quarterly Journal of Economics 126.1 (2011): 517-555.

Merton, R. "A Simple Model of Capital Market Equilibrium with Incomplete Information." Journal of Finance 42 (1987): 483-510.

National Council on School Facilities, 2016, The State of Our Schools: America's K-12 Facilities.

Panagopoulos, Costas, Jan E. Leighley, and Brian T. Hamel. "Are voters mobilized by a 'friend-and-neighbor'on the ballot? Evidence from a field experiment." Political behavior 39 (2017): 865-882.

Rubinfeld, Daniel L., and Randall Thomas. "On the economics of voter turnout in local school elections." Public Choice (1980): 315-331.

Salisbury, Linda Court. "Minimum payment warnings and information disclosure effects on consumer debt repayment decisions." Journal of Public Policy & Marketing 33.1 (2014): 49-64.

Seira, Enrique, Alan Elizondo, and Eduardo Laguna-Müggenburg. "Are information disclosures effective? Evidence from the credit card market." American Economic Journal: Economic Policy 9.1 (2017): 277-307.

Stango, Victor, and Jonathan Zinman. "Fuzzy math, disclosure regulation, and market outcomes: Evidence from truth-in-lending reform." The Review of Financial Studies 24.2 (2011): 506-534.

United States Government Accountability Office, 2020, K-12 Education: School Districts Frequently Identified Multiple Building Systems Needing Updates or Replacement.

US Department of Education. (2021, June 15). Federal role in Education. Home. Retrieved February 11, 2022, from https://www2.ed.gov/about/overview/fed/role.html

Van der Heijden, Eline, et al. "Framing effects and impatience: Evidence from a large-scale experiment." Journal of Economic Behavior & Organization 84.2 (2012): 701-711.

Washington, Ebonya L. "Female socialization: How daughters affect their legislator fathers' voting on women's issues." American Economic Review 98.1 (2008): 311-332.

Figure 1. Cumulative Real Education Spending over Time

The figure below depicts cumulative and inflation-adjusted education spending across the state of California from 1998 to 2018. Local spending is designated with the orange line and state-level spending is designated with the blue line. Source: State of California.

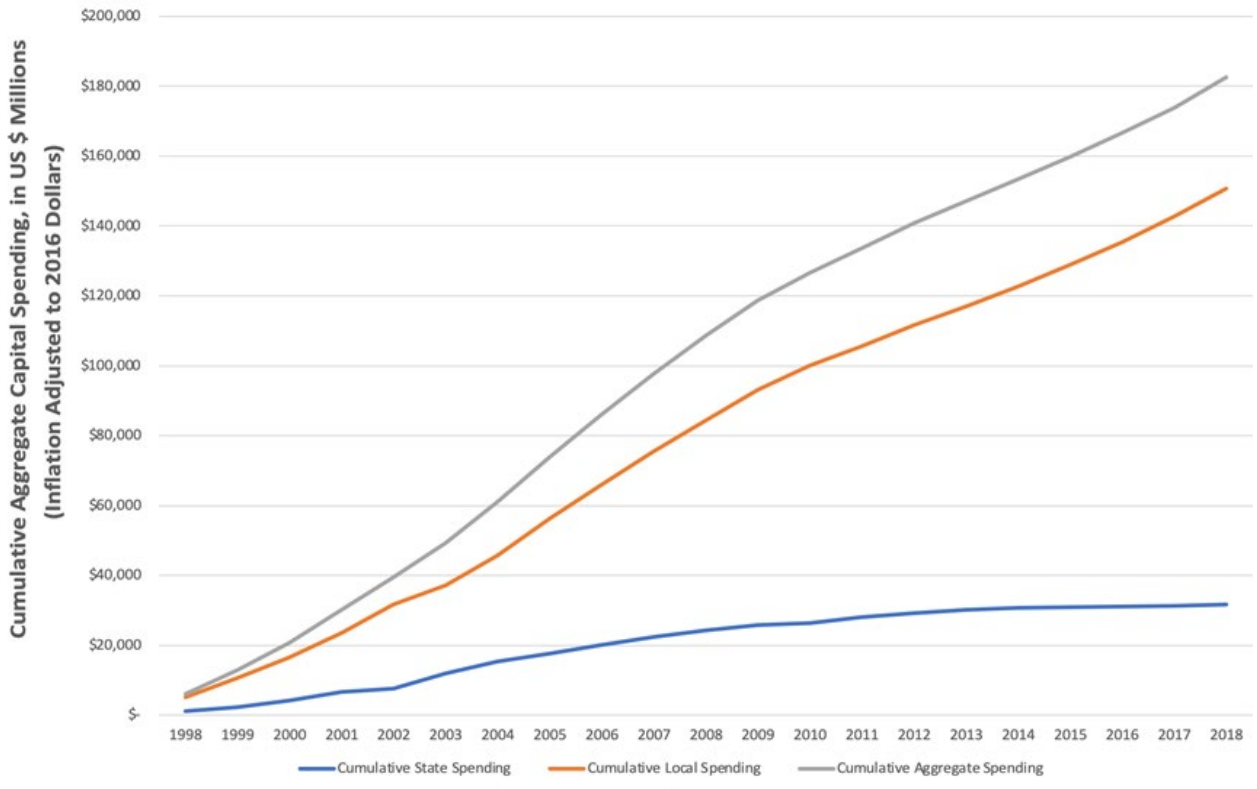
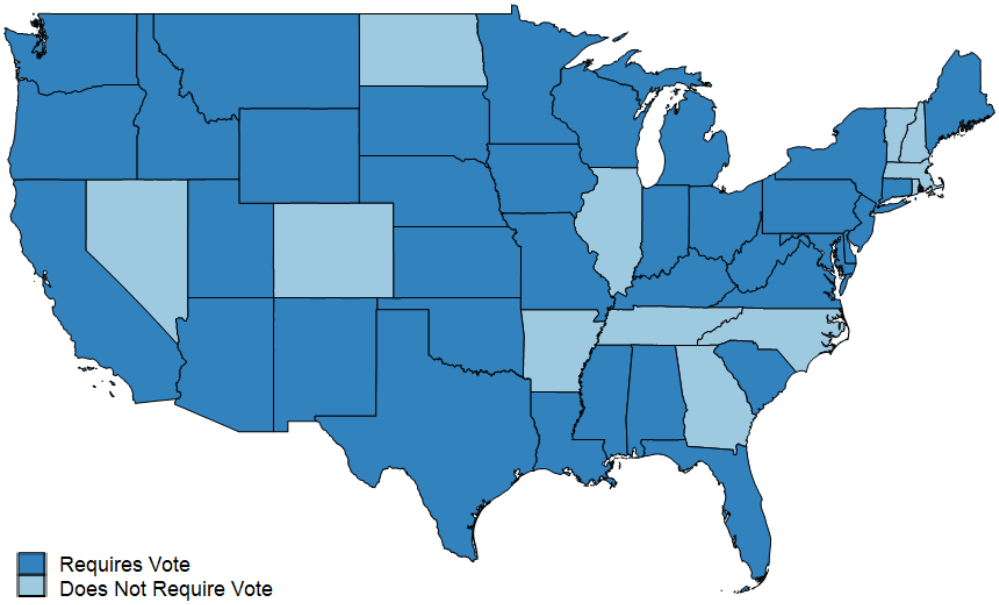


Figure 2: Summary of States that Require Public Vote to Pass Education Bonds

Panel A below shows states that require a public vote for a school district to issue general obligation bonds (shown in dark blue) and states that do not (shown in light blue). Panel B reports the estimated total face amount of general obligation education bonds outstanding that is issued from a state that requires voter approval to issue (dark blue state from Panel A). Sources: Individual states' election websites (Panel A) and State of California (Panel B).

Panel A. Map of States that Require a Public Vote to Pass GO Bonds



Panel B. Estimated Total Amount Outstanding of Education Bonds that Require Public Voter Approval to Issue

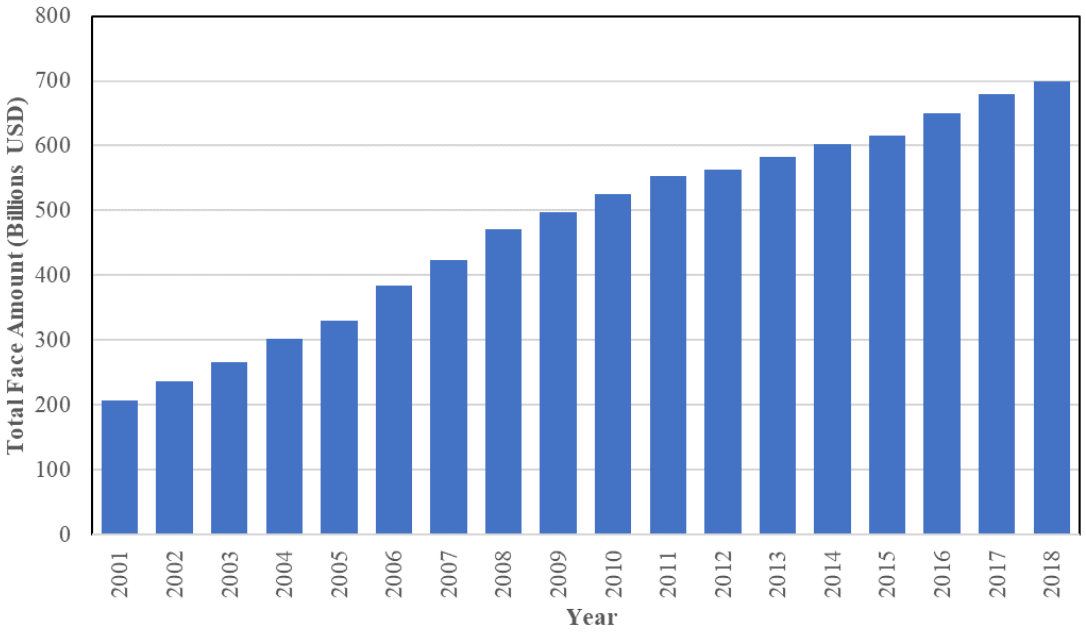


Figure 3: Sample Bond Referendum

The figure below shows an example of a ballot question related to school funding, taken from the March 3, 2020 election of Ukiah Unified School District in California. This ballot proposed $75,000,000 in total bond issuance. This ballot measure, which requires a 55% approval rate, passed by a slim margin, with 55.15% of votes. Source: Ballotopedia.

Ballot question

The ballot question was as follows:[1]

> To improve the quality of Ukiah Unified schools; repair or replace leaky roofs; make health and safety improvements; and modernize/construct classrooms, restrooms and school facilities; shall Ukiah Unified School District issue $75,000,000 of bonds at legal rates, generating on average $4,000,000 annually as long as bonds are outstanding at a rate of approximately 5 cents per $100 assessed value, with annual audits, independent citizens' oversight committee, NO money for salaries and no money taken by the State? [2]

Figure 4. Number of Bonds Passed versus Failed by Year

The figure below shows the total number of successful (blue bars) and failed (orange bars) bond measures between 1995 and 2019 for the state of California. While most bond measures required a 66.67% approval rate or higher to pass prior to 2001, Proposition 39 allowed school districts to propose and pass a bond measure with only 55% approval rate or higher (as long as they followed specified provisions) starting in 2001. Source: State of California.

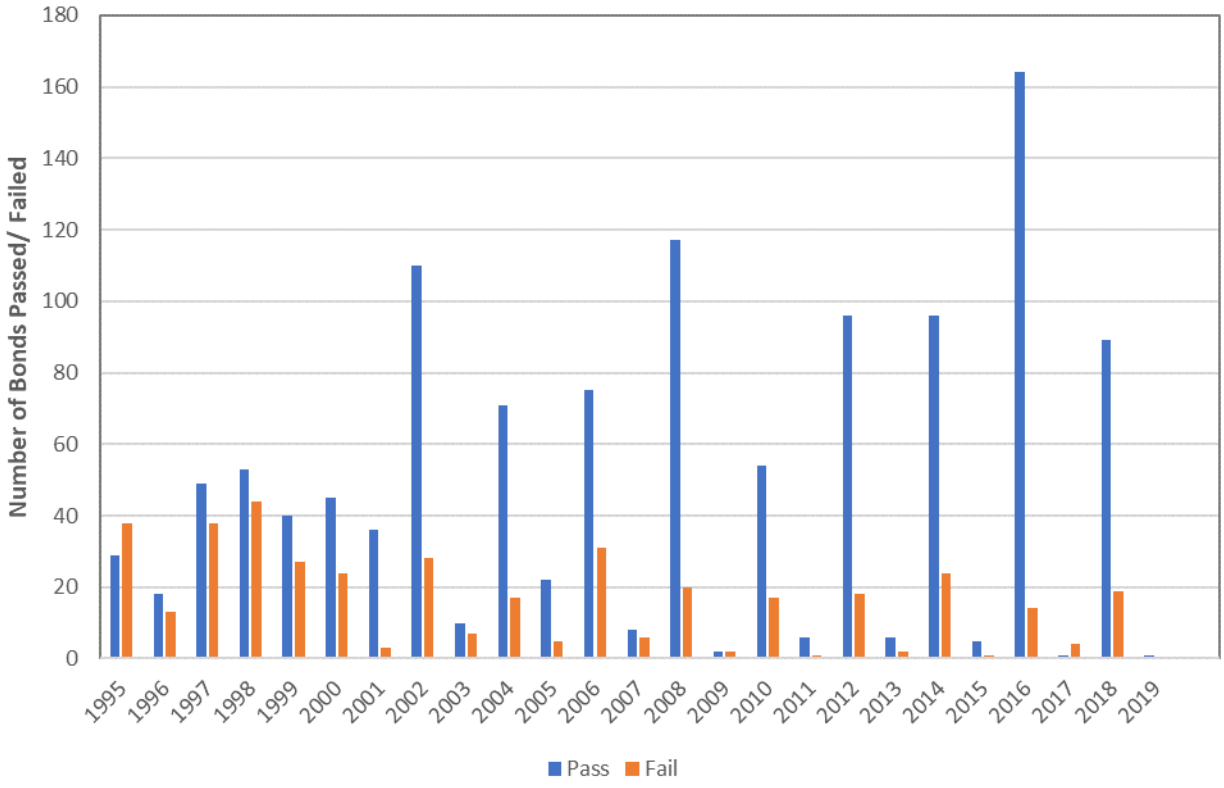


Figure 5. Voter Demographics and Yes Votes on Bond Ballots

This Figure shows binscatter plots that summarize the relationship between various voter demographics (x-axis) and the percent of yes votes received in favor of passing the bond (y-axis). Moving from left-right then top-bottom, the voter demographics depicted include percent of registered voters that are Democrats, percent of registered voters that are Republicans, percent of registered voters that are between ages 17-25, percent of registered voters that are older than 66, and the fraction of all eligible voters who actually registered to vote (a proxy for engagement). The underlying data has one observation per county, year, and ballot. Source: State of California.

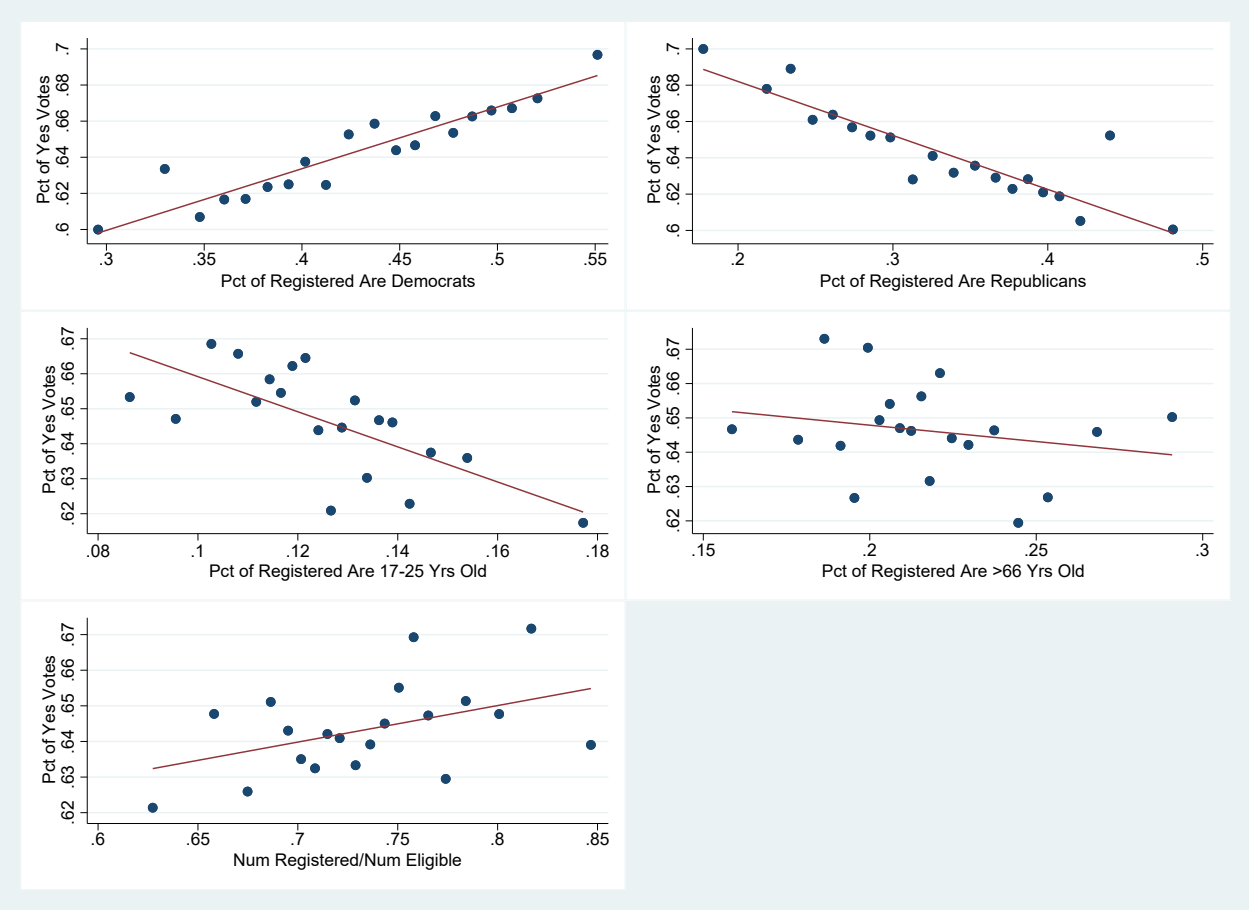


Table 1. Summary statistics

This table reports summary statistics for key variables over the period 1995-2020. Panels A, B, C, and D summarize the election, bond series, district, and voter registration data respectively. In each panel, the sample is divided into four categories. The maximum number of observations (district-year) is 23,761 and the total number of districts is 730. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. Sources: State of California (all panels) and Zillow (panel C, home prices).

Panel A. Summary of Election Data

	Mean	25th percentile	Median	75th percentile	Standard deviation
Election data (Number: 1,256)					
Authorized amount in US $ millions	111	15	40	98	356
Total votes	22,324	3,605	8,333	20,162	60,007
Percent of yes votes relative to total votes	0.68	0.63	0.68	0.73	0.07
Indicator: initiative requires two-thirds vote to pass	0.23	NA	NA	NA	NA
Indicator: initiative requires 55% vote to pass	0.77	NA	NA	NA	NA
Number of days between election date and bond issuance date	762	156	512	1087	855

Panel B. Summary of bond series issuance data

	Mean	25th percentile	Median	75th percentile	Standard deviation
Bond issue data (Number: 2,591)					
Principal amount in US $ millions	27	6	14	30	38
Interest cost in percent	4.50	3.71	4.47	5.14	1.25
Indicator: includes at least one capital appreciation bond	0.35	NA	NA	NA	NA
Indicator: includes at least one insured bond	0.65	NA	NA	NA	NA
Indicator: negotiated bid	0.73	NA	NA	NA	NA
Indicator: competitive bid	0.27	NA	NA	NA	NA
Fees as a percent of principal: (in %)					
Underwriting fee	0.93	0.50	0.85	1.20	0.59
Financial advisor fee	0.59	0.00	0.26	0.73	0.91
Counsel fee	0.54	0.17	0.33	0.67	0.59
Credit enhancement fee	0.33	0.00	0.21	0.37	0.66
Total fees	2.61	1.19	1.91	3.23	2.21
Fees in dollars (in US $ thousands)					
Underwriting fee	181	54	110	225	231
Financial advisor fee	53	18	60	75	43
Counsel fee	60	42	55	74	35
Total fees	382	186	269	434	489

Table 1. Summary statistics, cont.
Panel C. Summary of School District Data

	(1) Mean	(2) 25th percentile	(3) Median	(4) 75th percentile	(5) Standard deviation
	District characteristics				
Enrollment	7,212	1,200	3,301	9,120	9,732
Enrollment growth (1 yr) %	0.70	-1.68	0.28	2.4	0.49
Unified district dummy %	42.4	NA	NA	NA	NA
High school district dummy %	11.2	NA	NA	NA	NA
Elementary district dummy %	46.4	NA	NA	NA	NA
City dummy %	45.7	NA	NA	NA	NA
Suburb dummy %	20.7	NA	NA	NA	NA
Town dummy %	14.4	NA	NA	NA	NA
Rural dummy %	19.1	NA	NA	NA	NA
Prop. free and reduced price meals	33.3	9.3	31.3	53.7	25.9
Proportion non-white pupils	55.8	31.4	54.7	81.1	27.5
	Home prices and test scores				
Home price (US dollar)	490,587	237,110	378,186	616,518	374,179
API (range 200-1000)	744.2	686.9	747.9	805.9	92.6
Do not meet standards dummy %	30.7	21.4	31.0	40.3	12.9
Meet standards dummy %	25.0	21.4	25.3	28.8	5.2
Above standards dummy %	18.4	9.4	14.5	23.4	12.9
Meet or above standards dummy %	43.4	31.0	40.5	53.0	16.5
	Property taxes, capital spending & debt per pupil (in US $)				
Property taxes	3,456	1,618	2,557	4,254	2,983
Capital outlay	1,154	257	614	1,406	1,538
Local capital outlay	1,119	222	625	1,433	1,660
State capital outlay	289	0	0	29	869
State funding; new construction	167	0	0	0	961
State funding; modernization	113	0	0	0	488
Long term debt	5,825	103	3,631	8,160	7,314

Panel D. Summary of voter registration data

	Mean	25th percentile	Median	75th percentile	Standard deviation
Voting data (Number: 1,218)					
Total registered voters (000s)	296.2	25.9	90.8	271.4	647.6
Democrat %	39.6	33.1	37.7	46.3	8.2
Republican %	36.1	28.8	39.0	43.9	9.8
Num registered/ num eligible %	74.3	69.4	74.1	79.6	7.4
Between 17-25 years old %	10.9	7.3	10.9	13.7	3.5
Greater than 66 years old %	25.3	19.8	24.0	29.2	5.8

Table 2. Summary Statistics Categorized by District Bond Issuance History

This table reports means for key variables for different school districts over the period 1995-2020. The table divides school districts into four categories based upon bond issuance history in Panel A. As a baseline, Column 1 shows key variables' means over the full sample. The table separately reports means for school districts that: always succeed in passing bonds (Column 2), successfully pass at least one bond (Column 3), never attempt to pass a bond (Column 4), and attempt to but never succeed in passing a bond (Column 5). Panel B aggregates columns 2 and 3 and columns 4 and 5 and performs t-tests for differences in means. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. Sources: State of California and Zillow.

Panel A: Means for the full sample by district's bond issuance success

	(1) Full sample	(2) Always succeed	(3) Sometimes succeed	(4) Never try	(5) Try, never succeed
Max observations	18782	10346	5271	2551	614
Number of districts	730	400	200	106	24
	District characteristics				
Enrollment	7,212	8,006	8,972	1,402	2,826
Enrollment growth (1 yr) %	0.70	0.60	0.70	0.90	0.7
Unified district dummy %	42.4	40.7	55.4	22.5	42.7
High school district dummy %	11.2	12.1	14.3	2.5	6.4
Elementary district dummy %	46.4	47.3	30.4	75.0	51.0
City dummy %	45.7	51.4	49.3	21.4	19.4
Suburb dummy %	20.7	22.9	24.2	8.7	5.5
Town dummy %	14.4	14.7	14.1	13.8	16.9
Rural dummy %	19.1	11.1	12.4	56.2	58.1
Prop. free and reduced price meals	33.3	32.3	32.8	39.0	29.9
Proportion non-white pupils	55.8	58.6	55.4	48.8	39.8
	Home prices, test scores, dropouts				
Home price	490,587	554,917	460,021	317,191	311,722
API (range 200-1000)	744.2	749.2	739.0	732.5	752.3
Do not meet standards dummy %	30.7	29.4	31.3	34.5	30.4
Meet standards dummy %	25.0	25.2	24.9	23.8	26.3
Above standards dummy %	18.4	20.2	17.9	13.2	14.9
Meet or above standards dummy %	43.4	45.4	42.9	37.2	41.2
Dropout rate (HS only) %	1.4	1.3	1.6	1.2	0.9
	Capital spending & debt per pupil (in US $)				
Property taxes	3,456	3,757	3,401	2,447	3,216
Capital outlay	1,154	1,213	1,209	853	931
Local capital outlay	1,119	1,210	1,139	786	814
State capital outlay	289	283	322	242	307
State funding; new construction	167	147	201	153	276
State funding; modernization	113	119	115	92	83
Long term debt	5,825	6,925	6,158	1,375	2,832

Table 2. Summary Statistics Categorized by District Bond Issuance History, cont.
Panel B: Districts that issue at least one bond versus districts that never issue a bond

	(1) Full sample	(2) Issues least one bond	(3) Never issue a bond	(4) Difference: (2) – (3)
Max observations	18,782	15,617	3,165	NA
Number of districts	730	600	130	NA
	District characteristics			
Enrollment	7,212	8,332	1,679	6,653***
Enrollment growth (1 yr) %	0.70	0.62	0.86	0.24
Unified district dummy %	42.4	45.6	26.4	19.2***
High school district dummy %	11.2	12.8	3.2	9.6***
Elementary district dummy %	46.4	41.6	70.4	-28.8***
City dummy %	45.7	50.7	21.0	29.7***
Suburb dummy %	20.7	23.3	8.1	15.2***
Town dummy %	14.4	14.5	14.4	0.1
Rural dummy %	19.1	11.5	56.6	-45.1***
Free and reduced price meals %	33.3	32.5	38.2	-5.8***
Proportion non-white pupils %	55.8	57.6	44.8	12.8***
	Home prices, test scores, dropouts			
Home price	490,587	522,906	316,091	206,815***
API (range 200-1000)	744.2	745.7	736.4	9.3***
Do not meet standards dummy %	30.7	30.0	33.7	-3.7***
Meet standards dummy %	25.0	25.1	24.2	0.9***
Above standards dummy %	18.4	19.4	13.6	5.8***
Meet or above standards dummy %	43.4	44.6	37.9	6.7***
Dropout rate (HS only) %	1.4	1.4	1.1	0.3***
	Capital spending & debt per pupil (US $)			
Property taxes	3,456	3,635	2,592	1,043***
Capital outlay	1,154	1,211	869	342***
Local capital outlay	1,119	1,185	792	393***
State capital outlay	289	296	255	41**
State funding; new construction	167	165	176	-11
State funding; modernization	113	117	90	27**
Long term debt	5,825	6,666	1,658	5,008***

*** p<0.01, ** p<0.05, * p<0.1

Table 3. Education Outcomes Improve after Bond Passed with Close Votes

This table reports estimates from a regression discontinuity design using the 55% threshold for a bond ballot passing. Each observation is one bond ballot, and the variable Winning vote margin captures the difference between the percent of yes votes received versus the cutoff required to pass; Pass bond dummy is a variable equal to one if the bond was passed. We show results from three different samples, each narrowing in on the effect of bond passage: samples 1, 2, and 3 contain ballots within a 30%, 20%, and 10% margin around the vote cutoff point, respectively. In all analyses, our control variables include school district characteristics as well as the current state of the outcome variable of interest. The dependent variables include local capital spending in Panel A, test scores in Panel B, and home prices in Panel C. In columns 1-7, the dependent variable is measured for each of the seven years after the bond is authorized. We drop elections with authorized issuance of less than $10 million dollars, fewer than 1,000 total votes cast, and (due to the importance of having a uniform cutoff point) elections which did not use a 55% cutoff point. Standard errors are reported in parentheses. Additionally, we exclude ballots that took longer than 5 years to issue the first bond. The data sample covers years 1995-2020; and it comes from data provided by the State of California and Zillow. *** p<0.01, ** p<0.05, * p<0.1.

Panel A. Local Capital Spending

	(1)	(2)	(3)	(4)	(5)	(6)
	Log Local cap pp, yr t+1	**Log Local cap pp, yr t+2**	**Log Local cap pp, yr t+3**	**Log Local cap pp, yr t+4**	**Log Local cap pp, yr t+5**	**Log Local cap pp, yr t+6**
	Sample 1. 30% Bandwidth around Winning Threshold					
Pass Bond Dummy	0.540***	1.089***	0.780***	0.340**	-0.024	-0.050
	(0.114)	(0.127)	(0.140)	(0.151)	(0.173)	(0.191)
Winning Vote Margin	-0.630	0.711	4.412***	3.872**	6.125***	0.673
	(1.241)	(1.407)	(1.482)	(1.654)	(1.818)	(2.036)
Number of Observations	1,052	1,003	847	842	721	726
	Sample 2. 20% Bandwidth around Winning Threshold					
Pass Bond Dummy	0.571***	1.130***	0.796***	0.329**	-0.156	-0.208
	(0.122)	(0.135)	(0.146)	(0.157)	(0.182)	(0.203)
Winning Vote Margin	-0.972	0.473	3.524**	3.304*	6.857***	3.167
	(1.422)	(1.591)	(1.647)	(1.760)	(2.063)	(2.357)
Number of Observations	983	937	804	801	684	689
	Sample 3. 10% Bandwidth around Winning Threshold					
Pass Bond Dummy	0.630***	1.280***	0.523**	0.404*	-0.207	-0.289
	(0.163)	(0.172)	(0.204)	(0.229)	(0.247)	(0.267)
Winning Vote Margin	-3.243	-2.507	13.324***	4.203	6.997*	2.022
	(2.821)	(3.058)	(3.522)	(3.889)	(4.215)	(4.535)
Number of Observations	563	534	474	477	396	401
	Common Control Variables					
Current Cap. Exp.	Yes	Yes	Yes	Yes	Yes	Yes
School District Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 3, continued
Panel B. Average Test Scores

	(1) Mean API, yr t+1	(2) Mean API, yr t+2	(3) Mean API, yr t+3	(4) Mean API, yr t+4	(5) Mean API, yr t+5	(6) Mean API, yr t+6
	Sample 1. 30% Bandwidth around Winning Threshold					
Pass Bond Dummy	4.392**	5.768**	7.304**	6.494*	7.858*	7.600*
	(1.963)	(2.490)	(3.242)	(3.627)	(4.126)	(4.272)
Winning Vote Margin	-30.310	-43.659	-44.899	-39.168	-13.949	-15.244
	(23.834)	(30.156)	(38.389)	(43.472)	(53.965)	(57.023)
Number of Observations	661	651	534	546	467	489
	Sample 2. 20% Bandwidth around Winning Threshold					
Pass Bond Dummy	4.631**	5.927**	6.940**	6.410*	7.931*	8.151*
	(2.029)	(2.553)	(3.350)	(3.778)	(4.237)	(4.374)
Winning Vote Margin	-15.726	-32.634	-21.632	-20.381	-14.475	-15.899
	(25.140)	(31.585)	(40.733)	(46.518)	(54.457)	(57.401)
Number of Observations	629	620	509	521	449	471
	Sample 3. 10% Bandwidth around Winning Threshold					
Pass Bond Dummy	2.135	1.429	-0.744	-2.033	-2.052	-0.500
	(2.715)	(3.311)	(4.439)	(5.070)	(5.635)	(5.794)
Winning Vote Margin	34.300	17.107	102.425	84.902	133.310	72.147
	(48.564)	(59.991)	(77.208)	(89.471)	(98.707)	(102.990)
Number of Observations	366	360	295	306	263	278
	Common Control Variables					
Current Avg API	Yes	Yes	Yes	Yes	Yes	Yes
School District Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 3, continued
Panel C. Home Prices

	(1) Log Mean House Price, yr t+1	(2) Log Mean House Price, yr t+2	(3) Log Mean House Price, yr t+3	(4) Log Mean House Price, yr t+4	(5) Log Mean House Price, yr t+5	(6) Log Mean House Price, yr t+6
	Sample 1. 30% Bandwidth around Winning Threshold					
Pass Bond Dummy	0.022**	0.022*	0.017	0.022	0.012	0.020
	(0.009)	(0.013)	(0.016)	(0.019)	(0.023)	(0.023)
Winning Vote Margin	-0.204**	-0.282*	-0.365**	-0.441**	-0.368	-0.520**
	(0.097)	(0.145)	(0.181)	(0.212)	(0.244)	(0.249)
Number of Observations	1,157	1,157	1,062	1,057	900	893
	Sample 2. 20% Bandwidth around Winning Threshold					
Pass Bond Dummy	0.027***	0.029**	0.026	0.030	0.023	0.029
	(0.009)	(0.014)	(0.018)	(0.020)	(0.024)	(0.024)
Winning Vote Margin	-0.291***	-0.376**	-0.507**	-0.574**	-0.526*	-0.695**
	(0.112)	(0.168)	(0.212)	(0.240)	(0.275)	(0.280)
Number of Observations	1,088	1,088	993	989	856	849
	Sample 3. 10% Bandwidth around Winning Threshold					
Pass Bond Dummy	0.037***	0.046**	0.043*	0.035	0.025	0.021
	(0.013)	(0.019)	(0.025)	(0.027)	(0.032)	(0.032)
Winning Vote Margin	-0.487**	-0.862***	-1.044**	-1.025**	-1.125**	-0.995*
	(0.223)	(0.321)	(0.427)	(0.471)	(0.539)	(0.550)
Number of Observations	632	632	573	571	511	506
	Common Control Variables					
Current Log House Price	Yes	Yes	Yes	Yes	Yes	Yes
School District Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 4. Proposition 39 and Bond Passage

This table reports results from a Logit model in which the dependent variable is either set to 1 if the school district successfully passes a bond measure (Panel A) and is set to 0 otherwise. The key explanatory variables include a dummy for post 2001, when Proposition 39 was enacted, effectively dropping the voting cutoff from 66.67% to 55%. In addition, the treated group dummy is equal to one if a district had trouble passing bonds prior to 2001 (its average approval rates were between 55 and 66.67%). Standard errors are clustered by school district are reported in parentheses. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. The data sample covers years 1995-2020; and it comes from data provided by the State of California. *** p<0.01, ** p<0.05, * p<0.1

	(1)	(2)	(3)	(4)
	Dummy=1 if Bond is Passed			
Post 2001 Dummy		0.248***		0.043
		(0.060)		(0.077)
Treated Group Dummy			-0.261***	-0.680***
			(0.034)	(0.053)
Post 2001 x Treated				0.605***
				(0.066)
Controls				
Election Year	4.346***	-1.937	5.649***	-2.176
	(1.580)	(2.068)	(1.717)	(2.414)
Election Year ^2	-0.001***	0.000	-0.001***	0.001
	(0.000)	(0.001)	(0.000)	(0.001)
Ln property taxes per pupil	0.048*	0.048*	0.043	0.044
	(0.025)	(0.025)	(0.032)	(0.032)
Ln local capital expenses per pupil	0.000	-0.004	-0.004	-0.017
	(0.009)	(0.009)	(0.014)	(0.012)
Ln state capex per pupil	-0.006	-0.006	-0.011*	-0.012**
	(0.006)	(0.005)	(0.006)	(0.006)
Ln enrollment	0.029**	0.029**	0.046***	0.041**
	(0.014)	(0.014)	(0.018)	(0.017)
Ln long term debt	0.000	0.001	0.000	0.004
	(0.004)	(0.004)	(0.005)	(0.005)
Free and reduced price meal ratio	-0.038	-0.029	-0.151	-0.184*
	(0.083)	(0.083)	(0.101)	(0.097)
Pct non-white and non-Asian	0.177***	0.182***	0.225***	0.243***
	(0.068)	(0.068)	(0.078)	(0.072)
Unified district dummy	-0.103***	-0.103***	-0.095***	-0.099***
	(0.029)	(0.029)	(0.034)	(0.033)
High school district dummy	-0.097**	-0.094**	-0.084*	-0.079*
	(0.042)	(0.042)	(0.045)	(0.041)
Rural district dummy	-0.013	-0.027	-0.207**	-0.235**
	(0.057)	(0.057)	(0.099)	(0.106)
Urban district dummy	0.039	0.027	-0.090*	-0.088
	(0.045)	(0.045)	(0.053)	(0.056)
Suburban distirtc dummy	-0.004	0.007	-0.197***	-0.152***
	(0.044)	(0.045)	(0.055)	(0.057)
Observations	1,214	1,214	716	716
R-squared	0.081	0.096	0.208	0.325

Table 5. Educational Outcomes Improve for Treated Districts after Proposition 39

This table reports results from triple difference-in-difference regressions that show the effect of Proposition 39 (enacted in year 2001 to lower voter thresholds) on school districts that had trouble passing bonds before (i.e., the treated group). Each panel examines different outcomes (local capital spending in Panel A, test scores in Panel B, and home prices in Panel C) following bond passage before and after the date of the regulatory change. The dummy variable Post 2001 is set to one for all years after 2001 and 0 for prior years. The dummy variable Pass bond is set to 1 if a bond is authorized during the year and zero otherwise. In addition, the treated group dummy is equal to one if a district had trouble passing bonds prior to 2001 (its average approval rates were between 55 and 66.67%). The table also includes an interaction of Pass bond and Post 2001. The dependent variable is measured for each of the seven years after the bond is authorized. The regressions include school district fixed effects, year fixed effects, and all control variables shown in Table 4 above. Standard errors are clustered by school district, and t-statistics are shown in parentheses. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. *** p<0.01, ** p<0.05, * p<0.1

	(1)	(2)	(3)	(4)	(5)	(6)
	Log Local cap pp, yr t+1	Log Local cap pp, yr t+2	Log Local cap pp, yr t+3	Log Local cap pp, yr t+4	Log Local cap pp, yr t+5	Log Local cap pp, yr t+6
Treated Dummy	-0.227***	-0.367***	-0.467***	-0.337***	0.097	0.310**
	(0.061)	(0.078)	(0.093)	(0.123)	(0.137)	(0.129)
Post 2001 Dummy	-0.110	-0.284***	0.141	0.336***	0.300***	0.217*
	(0.069)	(0.094)	(0.109)	(0.107)	(0.110)	(0.115)
Bond Passed Dummy	0.040	0.312***	0.206*	0.141	0.322***	0.138
	(0.073)	(0.079)	(0.113)	(0.112)	(0.103)	(0.117)
Treated x Post 2001	0.186***	0.314***	0.390***	0.169	-0.337**	-0.556***
	(0.067)	(0.092)	(0.099)	(0.134)	(0.147)	(0.151)
Treated x Bond Passed	0.198	0.591***	0.838***	0.326	-0.275	0.403
	(0.153)	(0.174)	(0.232)	(0.339)	(0.450)	(0.303)
Bond Passed x Post 2001	0.196**	0.515***	0.870***	0.685***	0.293**	0.358**
	(0.088)	(0.099)	(0.130)	(0.130)	(0.139)	(0.150)
Treated x Bond Passed x Post 2001	-0.309*	-0.711***	-1.127***	-0.265	0.348	-0.369
	(0.161)	(0.199)	(0.256)	(0.367)	(0.474)	(0.325)
Controls for Current Expenditure?	Y	Y	Y	Y	Y	Y
Controls for School District Characteristics?	Y	Y	Y	Y	Y	Y
Controls for Linear Year Trend, Year^2?	Y	Y	Y	Y	Y	Y
Observations	4,990	4,720	4,445	4,195	3,924	3,709
R-squared	0.417	0.270	0.222	0.175	0.133	0.128

Table 5, continued
Panel B. Average Test Scores

	(1)	(2)	(3)	(4)	(5)	(6)
	Mean API, yr t+1	Mean API, yr t+2	Mean API, yr t+3	Mean API, yr t+4	Mean API, yr t+5	Mean API, yr t+6
Treated Dummy	-0.687	1.990	-1.922	-1.703	2.845	1.663
	(2.593)	(2.912)	(3.435)	(3.980)	(3.706)	(3.907)
Post 2001 Dummy	-21.965***	-20.999***	-3.061	-14.666***	-1.884	-14.671***
	(1.670)	(2.083)	(1.964)	(2.024)	(2.028)	(2.005)
Bond Passed Dummy	0.718	4.071	5.863	6.325	5.740	7.499*
	(2.977)	(3.096)	(3.699)	(4.365)	(4.409)	(4.421)
Treated x Post 2001	0.331	-3.357	0.663	0.175	-4.100	-3.313
	(2.665)	(3.005)	(3.480)	(4.008)	(3.656)	(3.527)
Treated x Bond Passed	-23.834***	-21.388***	-45.586***	-32.064***	-38.055***	-23.146***
	(3.864)	(4.333)	(5.105)	(6.272)	(6.187)	(6.489)
Bond Passed x Post 2001	0.620	-4.425	-4.427	-7.151	-3.621	-8.119*
	(3.129)	(3.229)	(3.974)	(4.749)	(4.886)	(4.773)
Treated x Bond Passed x Post 2001	20.070***	22.886***	44.639***	34.375***	35.072***	20.469***
	(4.058)	(4.842)	(5.470)	(6.610)	(6.792)	(6.671)
Controls for Current API?	Y	Y	Y	Y	Y	Y
Controls for School District Characteristics?	Y	Y	Y	Y	Y	Y
Controls for Linear Year Trend, Year^2?	Y	Y	Y	Y	Y	Y
Observations	3,415	3,148	2,886	2,638	2,381	2,223
R-squared	0.982	0.970	0.959	0.943	0.936	0.925

Table 5, continued
Panel C. Home Prices

	(1) Log Mean House Price, yr t+1	(2) Log Mean House Price, yr t+2	(3) Log Mean House Price, yr t+3	(4) Log Mean House Price, yr t+4	(5) Log Mean House Price, yr t+5	(6) Log Mean House Price, yr t+6
Treated Dummy	-0.025***	-0.047***	-0.049**	-0.043*	-0.024	-0.000
	(0.007)	(0.014)	(0.019)	(0.024)	(0.024)	(0.022)
Post 2001 Dummy	0.073***	0.151***	0.208***	0.130***	-0.103***	-0.327***
	(0.007)	(0.012)	(0.015)	(0.017)	(0.017)	(0.015)
Bond Passed Dummy	-0.008	-0.006	-0.004	0.006	0.015	0.027
	(0.008)	(0.014)	(0.020)	(0.026)	(0.027)	(0.021)
Treated x Post 2001	0.012	0.012	-0.013	-0.041*	-0.077***	-0.109***
	(0.007)	(0.014)	(0.018)	(0.022)	(0.023)	(0.023)
Treated x Bond Passed	0.015	-0.014	-0.073*	-0.142**	-0.168***	-0.143***
	(0.027)	(0.035)	(0.044)	(0.057)	(0.062)	(0.053)
Bond Passed x Post 2001	0.012	-0.000	-0.005	-0.036	-0.016	-0.050**
	(0.010)	(0.018)	(0.025)	(0.030)	(0.031)	(0.024)
Treated x Bond Passed x Post 2001	-0.004	0.043	0.120**	0.200***	0.232***	0.183***
	(0.029)	(0.040)	(0.049)	(0.061)	(0.069)	(0.058)
Controls for Current Home Price?	Y	Y	Y	Y	Y	Y
Controls for School District Characteristics?	Y	Y	Y	Y	Y	Y
Controls for Linear Year Trend, Year^2?	Y	Y	Y	Y	Y	Y
Observations	5,328	5,326	5,058	4,786	4,513	4,242
R-squared	0.976	0.931	0.884	0.844	0.831	0.853

Table 6. Predicting Ballot Turnout Using Voter Demographics

This table reports results from a regression explaining the log number of votes received on each bond ballot using voter demographics. Key explanatory variables include percent of registered Democrats/Republicans, percent of young (17-25 years old) or elderly (greater than 66 years old) voters, and a dummy for a competitive race (percent of Democrats and Republications are less than 5% apart). Standard errors are clustered by school district are reported in parentheses. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. The data sample covers years 1995-2020; and it comes from the State of California. *** p<0.01, ** p<0.05, * p<0.1

	(1)	(2)	(3)	(4)	(5)	(6)
	Log Total Votes (Num Votes) on Education Bond Ballot					
% Democrat			-2.303***			-1.878**
			(0.732)			(0.758)
% Republican			-2.483***			-2.221***
			(0.643)			(0.681)
Competitive district dummy				-0.053		0.019
				(0.041)		(0.039)
% Young voters (<25 yrs old)					-0.858	0.557
					(1.132)	(1.046)
% Elderly voters (>66 yrs old)					2.195**	2.561***
					(0.980)	(0.909)
Log total registered in county	0.319***	-0.008	-0.025	-0.008	0.023	0.007
	(0.031)	(0.016)	(0.016)	(0.016)	(0.020)	(0.021)
Dummy for 55% threshold		0.356**	0.346**	0.358**	0.345**	0.340**
		(0.139)	(0.140)	(0.139)	(0.141)	(0.141)
Ln total amount authorized		0.084*	0.074*	0.082*	0.086**	0.079*
		(0.043)	(0.042)	(0.042)	(0.042)	(0.041)
Ln enrollment		0.877***	0.880***	0.881***	0.872***	0.877***
		(0.039)	(0.038)	(0.039)	(0.040)	(0.039)
Ln prop taxes per pupil		0.410***	0.354***	0.408***	0.362***	0.320***
		(0.041)	(0.040)	(0.041)	(0.043)	(0.040)
Ln local capex per pupil		-0.022*	-0.018	-0.022*	-0.020*	-0.016
		(0.012)	(0.012)	(0.012)	(0.012)	(0.011)
Ln state capex per pupil		-0.005	-0.004	-0.005	-0.004	-0.003
		(0.011)	(0.010)	(0.010)	(0.011)	(0.010)
Ln long term debt		-0.005	-0.005	-0.005	-0.004	-0.005
		(0.005)	(0.006)	(0.005)	(0.005)	(0.006)
Free and reduced price meal ratio		-0.038	-0.029	-0.034	-0.092	-0.077
		(0.134)	(0.133)	(0.134)	(0.134)	(0.133)
Pct non-white and non-Asian		-0.610***	-0.614***	-0.613***	-0.518***	-0.548***
		(0.129)	(0.128)	(0.129)	(0.129)	(0.128)
Unified district dummy		-0.365***	-0.341***	-0.363***	-0.354***	-0.340***
		(0.040)	(0.042)	(0.041)	(0.040)	(0.042)
High school district dummy		0.502***	0.532***	0.501***	0.504***	0.528***
		(0.067)	(0.064)	(0.067)	(0.067)	(0.064)
Rural district dummy		0.021	0.046	0.024	0.018	0.039
		(0.069)	(0.068)	(0.068)	(0.066)	(0.066)
Urban district dummy		0.026	0.054	0.023	0.057	0.064
		(0.076)	(0.075)	(0.076)	(0.079)	(0.078)
Suburban district dummy		0.096	0.113	0.093	0.098	0.102
		(0.069)	(0.069)	(0.069)	(0.069)	(0.069)
Year FE's?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,312	1,228	1,228	1,228	1,228	1,228
R-squared	0.201	0.805	0.808	0.805	0.808	0.811

Table 7. Predicting Yes Votes on Bond Ballot Using Voter Demographics

This table reports results from a regression explaining the percent of yes votes received on each bond ballot using voter demographics. Key explanatory variables include percent of registered Democrats/Republicans, percent of young (17-25 years old) or elderly (greater than 66 years old) voters, and a dummy for a competitive race (percent of Democrats and Republications are less than 5% apart). Standard errors are clustered by school district are reported in parentheses. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. The data sample covers years 1995-2020 and comes from the State of California. *** p<0.01, ** p<0.05, * p<0.1

	(1)	(2)	(3)	(4)	(5)
			% of Yes Votes		
% Participation (registered/eligible voters)	0.107**				-0.034
	(0.052)				(0.050)
% Democrat		0.100			0.152
		(0.110)			(0.113)
% Republican		-0.221**			-0.139
		(0.093)			(0.099)
Competitive district dummy			-0.027***		-0.008
			(0.007)		(0.007)
% Young voters (<25 yrs old)				-0.444***	-0.135
				(0.111)	(0.112)
% Elderly voters (>66 yrs old)				-0.887***	-0.485***
				(0.169)	(0.187)
Ln total voter turnout (num voters)	-0.004	-0.007	-0.001	-0.000	-0.007
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
Dummy for 55% threshold	-0.015	-0.018	-0.015	-0.020*	-0.019*
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Ln total amount authorized	0.008*	0.002	0.006	0.003	0.001
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Ln enrollment	-0.007	0.003	-0.006	-0.008	0.003
	(0.007)	(0.008)	(0.007)	(0.007)	(0.008)
Ln prop taxes per pupil	0.011	0.012*	0.010	0.012*	0.011*
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Ln local capex per pupil	0.001	0.002	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Ln state capex per pupil	0.001	0.001	-0.000	-0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln long term debt	0.001	-0.000	0.001	0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Free and reduced price meal ratio	0.024	0.051***	0.012	0.024	0.050***
	(0.017)	(0.016)	(0.017)	(0.018)	(0.017)
Pct non-white and non-Asian	0.078***	0.044***	0.082***	0.080***	0.049***
	(0.016)	(0.016)	(0.016)	(0.017)	(0.016)
Unified district dummy	-0.018**	-0.021***	-0.018***	-0.016**	-0.021***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
High school district dummy	-0.038***	-0.029***	-0.040***	-0.036***	-0.028***
	(0.010)	(0.010)	(0.009)	(0.010)	(0.010)
Rural district dummy	-0.022*	-0.018	-0.019*	-0.020*	-0.018
	(0.012)	(0.011)	(0.011)	(0.012)	(0.011)
Urban district dummy	0.035***	0.029***	0.031***	0.038***	0.033***
	(0.011)	(0.010)	(0.010)	(0.011)	(0.011)
Suburban district dummy	0.022**	0.010	0.021**	0.023**	0.013
	(0.010)	(0.009)	(0.010)	(0.010)	(0.010)
Year FE's?	Yes	Yes	Yes	Yes	Yes
Observations	1,311	1,228	1,588	1,318	1,228

Table 8. Expected Tax Burdens Deter Yes Votes

This table reports results from a regression explaining the percent of yes votes received on each bond ballot using mentions of tax costs. Panels A and B measure tax burden using mention of "no tax increase" and numerical estimate of tax cost, respectively. Other key explanatory variables include percent of registered Democrats/Republicans, percent of young (17-25 years old) or elderly (greater than 66 years old) voters, and a dummy for a competitive race (percent of Democrats and Republications are less than 5% apart). Standard errors are clustered by school district are reported in parentheses. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. The data sample covers years 1995-2020; and it comes from data provided by the State of California. *** p<0.01, ** p<0.05, * p<0.1

Panel A: Promise of No Tax Increase Boosts Yes Votes

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
No Tax Increase Dummy	0.030**	-0.135*	0.175***	0.313***	0.071	0.015
	(0.012)	(0.078)	(0.065)	(0.107)	(0.068)	(0.013)
No Tax Increase Dummy x Pct Young Voters		1.242**				
		(0.595)				
No Tax Increase Dummy x Pct Older Voters			-0.707**			
			(0.310)			
No Tax Increase Dummy x Pct Participation				-0.391***		
				(0.147)		
No Tax Increase Dummy x Pct Registered Democrat					-0.094	
					(0.153)	
No Tax Increase Dummy x Competitive District Dummy						0.042*
						(0.024)
Pct Young Voters	-0.492***	-0.520***	-0.481**	-0.492***	-0.492***	-0.499***
	(0.188)	(0.189)	(0.187)	(0.187)	(0.188)	(0.189)
Pct Older Voters	-0.131	-0.141	-0.114	-0.132	-0.133	-0.137
	(0.113)	(0.114)	(0.114)	(0.113)	(0.113)	(0.113)
Pct Participation (num registered/eligible voters)	-0.034	-0.031	-0.032	-0.022	-0.033	-0.035
	(0.051)	(0.051)	(0.051)	(0.052)	(0.051)	(0.051)
Pct Registered Democrat	0.159	0.162	0.160	0.161	0.161	0.162
	(0.113)	(0.114)	(0.114)	(0.114)	(0.114)	(0.113)
Pct Registered Republican	-0.131	-0.129	-0.131	-0.131	-0.131	-0.129
	(0.100)	(0.100)	(0.100)	(0.100)	(0.100)	(0.099)
Competitive District Dummy	-0.009	-0.009	-0.009	-0.009	-0.009	-0.011
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Year FE's?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,210	1,210	1,210	1,210	1,210	1,210
R-squared	0.294	0.296	0.296	0.296	0.294	0.295

Table 8, continued
Panel B: Including an Estimate of Tax Costs Deters Yes Votes

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
Dummy for Estimate of Tax Cost	-0.034***	-0.023	-0.062	0.131	-0.006	-0.040***
	(0.012)	(0.041)	(0.042)	(0.087)	(0.039)	(0.012)
Tax Cost Dummy x Pct Young Voters		-0.087				
		(0.320)				
Tax Cost Dummy x Pct Older Voters			0.129			
			(0.187)			
Tax Cost Dummy x Pct Participation				-0.217*		
				(0.111)		
Tax Cost Dummy x Pct Registered Democrat					-0.068	
					(0.084)	
Tax Cost Dummy x Competitive District Dummy						0.032**
						(0.014)
Pct Young Voters	-0.488**	-0.478**	-0.482**	-0.508***	-0.483**	-0.488**
	(0.194)	(0.194)	(0.194)	(0.194)	(0.194)	(0.194)
Pct Older Voters	-0.227**	-0.226**	-0.238**	-0.239**	-0.228**	-0.227**
	(0.113)	(0.112)	(0.116)	(0.113)	(0.113)	(0.112)
Pct Participation (num registered/eligible voters)	0.042	0.042	0.044	0.058	0.043	0.041
	(0.050)	(0.050)	(0.050)	(0.052)	(0.050)	(0.050)
Pct Registered Democrat	0.195*	0.193*	0.190	0.211*	0.202*	0.195*
	(0.117)	(0.117)	(0.117)	(0.118)	(0.119)	(0.116)
Pct Registered Republican	-0.067	-0.069	-0.071	-0.051	-0.065	-0.068
	(0.102)	(0.103)	(0.103)	(0.104)	(0.103)	(0.102)
Competitive District Dummy	-0.005	-0.005	-0.005	-0.005	-0.005	-0.008
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
Control for Year and Year Squared?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,228	1,228	1,228	1,228	1,228	1,228
R-squared	0.229	0.229	0.229	0.231	0.229	0.231

Table 9: Some but Not All Expected Benefits Boost Yes Votes
Panel A. Mention of Fixing HVAC Boosts Yes Votes

This table reports results from a regression explaining the percent of yes votes received on each bond ballot using mention of expected benefits. Panels A and B measure benefits using dummy variables for specific fixes and any mention of technology, respectively. Other key explanatory variables include percent of registered democrats/republicans, percent of young (17-25 years old) or elderly (greater than 66 years old) voters, and a dummy for a competitive race (percent of Democrats and Republications are less than 5% apart). Standard errors are clustered by school district are reported in parentheses. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. The data sample covers years 1995-2020 and it comes from the State of California. *** p<0.01, ** p<0.05, * p<0.1

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
Dummy for Fire Safety	0.011	0.011	0.010	0.011	0.011	0.010
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dummy for Water	0.005	0.005	0.007	0.003	0.005	0.006
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Dummy for Playground	-0.009	-0.009	-0.007	-0.009	-0.009	-0.008
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Dummy for Earthquake-related	0.018	0.018	0.018	0.018	0.017	0.020*
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Dummy for Mold	-0.020	-0.021	-0.023*	-0.021	-0.020	-0.021
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Dummy for Leaks	-0.006	-0.006	-0.004	-0.006	-0.006	-0.004
	(0.009)	(0.009)	(0.008)	(0.009)	(0.009)	(0.009)
Dummy for HVAC	0.016**	-0.004	0.083**	0.110	0.007	0.006
	(0.006)	(0.031)	(0.032)	(0.071)	(0.027)	(0.006)
HVAC x Pct Young Voters		0.157				
		(0.253)				
HVAC x Pct Older Voters			-0.307**			
			(0.142)			
HVAC x Pct Participation				-0.125		
				(0.093)		
HVAC x Pct Democrat					0.021	
					(0.061)	
HVAC x Competitive Dummy						0.042***
						(0.014)
Pct Young Voters	-0.468**	-0.513**	-0.474**	-0.483**	-0.468**	-0.486***
	(0.188)	(0.201)	(0.188)	(0.188)	(0.188)	(0.184)
Pct Older Voters	-0.125	-0.127	-0.042	-0.137	-0.124	-0.141
	(0.112)	(0.113)	(0.118)	(0.113)	(0.112)	(0.112)
Pct Participation	-0.048	-0.046	-0.051	-0.011	-0.049	-0.046
	(0.051)	(0.051)	(0.051)	(0.059)	(0.051)	(0.050)
Pct Registered Democrat	0.137	0.142	0.149	0.151	0.130	0.151
	(0.112)	(0.112)	(0.112)	(0.113)	(0.117)	(0.111)
Pct Registered Republican	-0.149	-0.143	-0.135	-0.134	-0.150	-0.139
	(0.098)	(0.099)	(0.099)	(0.100)	(0.099)	(0.098)
Dummy for Competitive District	-0.009	-0.009	-0.008	-0.009	-0.009	-0.021***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
Year FE's?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,228	1,228	1,228	1,228	1,228	1,228
R-squared	0.298	0.299	0.302	0.300	0.298	0.305

Table 9, continued
Panel B. Mention of Technology Boosts Young Voters' Yes Votes

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
Dummy for Mention of Technology	0.001	-0.082***	0.094***	0.146**	-0.020	-0.007
	(0.007)	(0.025)	(0.027)	(0.057)	(0.025)	(0.007)
Technology x Pct Young Voters		0.662***				
		(0.193)				
Technology x Pct Older Voters			-0.423***			
			(0.119)			
Technology x Pct Participation				-0.195**		
				(0.075)		
Technology x Pct Democrat					0.051	
					(0.056)	
Technology x Competitive District Dummy						0.037***
						(0.012)
Dummy for HVAC	0.016**	0.017***	0.017**	0.017**	0.016**	0.016**
	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
Dummy for Fire Safety	0.011	0.011	0.011	0.010	0.011	0.010
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dummy for Water	0.005	0.006	0.007	0.005	0.005	0.007
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Dummy for Playground	-0.009	-0.008	-0.007	-0.009	-0.009	-0.009
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Dummy for Earthquake-related	0.017	0.019*	0.016	0.019*	0.016	0.020*
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Dummy for Mold	-0.020	-0.024*	-0.023*	-0.021	-0.020	-0.022
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Dummy for Leaks	-0.006	-0.006	-0.006	-0.006	-0.006	-0.005
	(0.009)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)
Pct Young Voters	-0.469**	-0.681***	-0.456**	-0.496***	-0.467**	-0.467**
	(0.188)	(0.196)	(0.189)	(0.188)	(0.188)	(0.185)
Pct Older Voters	-0.124	-0.125	0.031	-0.148	-0.125	-0.127
	(0.112)	(0.111)	(0.121)	(0.113)	(0.113)	(0.112)
Pct Participation	-0.049	-0.042	-0.055	0.032	-0.051	-0.045
	(0.050)	(0.051)	(0.050)	(0.066)	(0.051)	(0.050)
Pct Registered Democrat	0.137	0.168	0.171	0.167	0.111	0.183
	(0.112)	(0.112)	(0.113)	(0.114)	(0.120)	(0.112)
Pct Registered Republican	-0.149	-0.122	-0.119	-0.119	-0.154	-0.118
	(0.099)	(0.099)	(0.100)	(0.100)	(0.099)	(0.098)
Dummy for Competitive District	-0.009	-0.010	-0.009	-0.010	-0.008	-0.025***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)
Year FE's?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,228	1,228	1,228	1,228	1,228	1,228
R-squared	0.298	0.299	0.302	0.300	0.298	0.305

Table 10. Potentially Less-Relevant, Textual Information Also Sway Yes Votes

This table reports results from a regression explaining the percent of yes votes received on each bond ballot using needy descriptions (Panel A), length of text (Panel B), and mention of state-wide budget cuts (Panel C). Other key explanatory variables include percent of registered democrats/republicans, percent of young (17-25 years old) or elderly (greater than 66 years old) voters, and a dummy for a competitive race (percent of Democrats and Republications are less than 5% apart). Standard errors are clustered by school district are reported in parentheses. The table drops elections with authorized issuance of less than $10 million dollars and fewer than 1,000 total votes cast. The data sample covers years 1995-2020; and it comes from data provided by the State of California. *** p<0.01, ** p<0.05, * p<0.1

Panel A. Use of Needy Descriptions Boosts Yes Votes

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
Dummy for Use of Descriptive Words	0.015**	-0.002	0.059**	0.018	0.023	0.006
	(0.007)	(0.027)	(0.029)	(0.071)	(0.027)	(0.007)
Descriptive Words x Pct Young Voters		0.132				
		(0.217)				
Descriptive Words x Pct Older Voters			-0.201			
			(0.124)			
Descriptive Words x Pct Participation				-0.004		
				(0.094)		
Descriptive Words x Pct Democrat					-0.019	
					(0.060)	
Descriptive Words x Competitive District						0.038***
						(0.013)
Dummy for HVAC	0.011*	0.011*	0.012*	0.011*	0.011*	0.012*
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Dummy for Fire Safety	0.008	0.008	0.007	0.008	0.008	0.007
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dummy for Water	0.006	0.006	0.007	0.006	0.006	0.006
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Dummy for Playground	-0.007	-0.007	-0.006	-0.007	-0.007	-0.006
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Dummy for Earthquake-related	0.018*	0.019*	0.019*	0.018*	0.019*	0.020*
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Dummy for Mold	-0.022	-0.022	-0.024*	-0.022	-0.022	-0.023
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Dummy for Leaks	-0.006	-0.006	-0.006	-0.006	-0.006	-0.005
	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)
Pct Young Voters	-0.483**	-0.528**	-0.489***	-0.483**	-0.482**	-0.492***
	(0.187)	(0.208)	(0.188)	(0.188)	(0.187)	(0.184)
Pct Older Voters	-0.133	-0.136	-0.068	-0.134	-0.133	-0.141
	(0.112)	(0.112)	(0.120)	(0.113)	(0.112)	(0.112)
Pct Participation	-0.043	-0.041	-0.048	-0.041	-0.041	-0.046
	(0.051)	(0.051)	(0.051)	(0.063)	(0.051)	(0.050)
Pct Registered Democrat	0.133	0.138	0.143	0.133	0.141	0.152
	(0.112)	(0.112)	(0.112)	(0.114)	(0.119)	(0.111)
Pct Registered Republican	-0.147	-0.142	-0.139	-0.146	-0.145	-0.139
	(0.098)	(0.099)	(0.098)	(0.101)	(0.099)	(0.097)
Dummy for Competitive District	-0.009	-0.009	-0.009	-0.009	-0.010	-0.024***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)
Year FE's?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,228	1,228	1,228	1,228	1,228	1,228
R-squared	0.298	0.299	0.302	0.300	0.298	0.305

Table 10, continued
Panel B. Longer Ballot Lengths Boost Yes Votes

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
Length of Ballot	0.084*	0.307	-0.357*	-0.463	-0.009	0.162***
	(0.051)	(0.188)	(0.209)	(0.488)	(0.190)	(0.051)
Length of Ballot x Pct Young Voters		-1.793				
		(1.493)				
Length of Ballot x Pct Older Voters			1.901**			
			(0.836)			
Length of Ballot x Pct Participation				0.727		
				(0.638)		
Length of Ballot x Pct Registered Democrat					0.239	
					(0.449)	
Length of Ballot x Competitive District Dummy						-0.282***
						(0.094)
Pct Young Voters	-0.468**	0.592	-0.479**	-0.495***	-0.466**	-0.462**
	(0.186)	(0.918)	(0.186)	(0.187)	(0.186)	(0.183)
Pct Older Voters	-0.127	-0.129	-1.262**	-0.136	-0.127	-0.113
	(0.112)	(0.113)	(0.513)	(0.113)	(0.112)	(0.113)
Pct Participation (num registered/eligible voters)	-0.029	-0.023	-0.032	-0.462	-0.029	-0.026
	(0.050)	(0.050)	(0.050)	(0.382)	(0.050)	(0.050)
Pct Registered Democrat	0.141	0.149	0.149	0.152	0.001	0.162
	(0.113)	(0.113)	(0.113)	(0.114)	(0.275)	(0.113)
Pct Registered Republican	-0.152	-0.143	-0.142	-0.139	-0.150	-0.140
	(0.099)	(0.099)	(0.099)	(0.100)	(0.099)	(0.099)
Competitive District Dummy	-0.007	-0.007	-0.007	-0.007	-0.007	0.161***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.057)
Year FE's?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,228	1,228	1,228	1,228	1,228	1,228
R-squared	0.291	0.292	0.294	0.292	0.291	0.298

Table 10, continued
Panel C. Mention of State-wide Budget Cut Sometimes Boosts Votes

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
Mention Budget Cut Dummy	0.037	-0.296*	0.129	0.993***	0.097	-0.022
	(0.026)	(0.179)	(0.204)	(0.295)	(0.182)	(0.041)
Mention Budget Cut x Pct Young Voters		2.538*				
		(1.304)				
Mention Budget Cut x Pct Older Voters			-0.438			
			(0.899)			
Mention Budget Cut x Pct Participation				-1.317***		
				(0.418)		
Mention Budget Cut x Pct Registered Democrat					-0.139	
					(0.422)	
Mention Budget Cut x Competitive District Dummy						0.107**
						(0.044)
Pct Young Voters	-0.487***	-0.486***	-0.485***	-0.483**	-0.486***	-0.478**
	(0.187)	(0.187)	(0.187)	(0.187)	(0.187)	(0.188)
Pct Older Voters	-0.137	-0.134	-0.135	-0.143	-0.136	-0.131
	(0.113)	(0.113)	(0.113)	(0.113)	(0.113)	(0.113)
Pct Participation (num registered/eligible voters)	-0.034	-0.036	-0.034	-0.025	-0.035	-0.036
	(0.051)	(0.050)	(0.051)	(0.051)	(0.051)	(0.050)
Pct Registered Democrat	0.137	0.134	0.138	0.132	0.140	0.140
	(0.113)	(0.113)	(0.113)	(0.113)	(0.114)	(0.113)
Pct Registered Republican	-0.152	-0.154	-0.151	-0.151	-0.151	-0.150
	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)	(0.099)
Competitive District Dummy	-0.008	-0.009	-0.009	-0.009	-0.008	-0.010
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Year FE's?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,228	1,228	1,228	1,228	1,228	1,228
R-squared	0.291	0.293	0.291	0.294	0.291	0.294

Appendix

Table A1. Summary Notes on Voting Rules by State

state	summary	details	school budget has limits or require approval?	require approval to have bond election?	direct limit on size?
alabama	new issues only	simple majority vote			
alaska	none	approved by dept of education and Early Development, The Commissioner of Education approves all new construction and existing renovations or capital improvement projects, Under Alaska law, all school districts involved in the funding program for bond issues must pay a share of the funds back, depending on how large the school district is as part of a condition of receiving state funding. This is done on the basis of value of average daily membership. Any district that has a value of $1 to $150,000 must repay five percent, districts with values of $150,001 to $275,000 must repay ten percent, districts with values of $275,001 to $800,000 must repay thirty percent, while districts that have values over $800,000 must repay thirty-five percent.			
arizona	new issues only	simple majority vote. Also, a school district which has a petition with signatures from fifteen percent of the school district's voters who voted in the last election can call for a referendum to approve a bond issue.			
arkansas	yes, but may not be necessary	No school district can exceed the twenty-five mill debt limit, which is considered to be uniform under the Constitution of Arkansas for all school districts.			
california	yes	66.67% supermajority before 2001, and 55% after			
colorado	only if exceeding debt limit	Under TABOR, local voter approval is required if the school district wants to exceed its tax levy above the normal rate of inflation set by the consumer price index.			
connecticut	none	In Connecticut, all bonds for public school districts must be approved by the Connecticut State Treasurer. It is up to the Treasurer to approve all bonds in Connecticut. The State of Connecticut can issue up to $14.82 million dollars in bonding every year for school districts needing bonding. Bonds for public schools in Connecticut cannot be sold below par value, must have a twenty year maturity from the date of issue, and must have the full faith and credit of the State of Connecticut	Yes		

delaware	new issues only, there are debt limits and all bonds are approved by attorney general	Under Delaware law, all school districts must call for a special election in order to issue new bonds.[1] School districts can issue new bonds for capital improvements, new construction or the acquisition of lands and buildings.[2] Before a school district can call for a bond election, all bonds must be approved by the Delaware Attorney General. Delaware is one of a handful of states that requires school districts to obtain some form of approval from a state government unit before issuing bonds for certain purposes.[3] In most counties in Delaware, school districts cannot exceed ten percent (10%) of their total debt valuation when issuing new bonds. In some of Delaware's largest counties there are different limits. In Sussex County, school districts cannot exceed fifty percent (50%) of their total debt valuation, while in Kent County school districts cannot exceed sixty percent (60%) of their debt.[4]		yes	
DC	none	There are no School bond and tax elections in Washington, D.C. Because Washington, D.C.'s public schools are under the control of the Mayor, all decisions involving school finance are handled by the District's Chief Financial Officer in conjunction with the Mayor. The City Council has all authority on financial approval.			
florida	new issues, exceed limit	there is a separate law that requires voting to increase state's milage limit (10 mil per school district)			
georgia	only if exceeding debt limit	Exceed the 20 mil levy limit set by the Georgia Constitution.			
hawaii	none	decided by Hawaii legislature, can ONLY issue special purpose revenue bonds			
idaho	new issues, exceed limit	Regular school districts cannot have bonds that exceed more than five percent of the district's debt valuation while special districts are limited to two percent			
illinois	new issues, capital improvements, contingency funds, and exceeding limits only	Regular school districts cannot have bonds that exceed more than five percent of the district's debt valuation while special districts are limited to two percent [2].			
indiana	new issues, exceed limit	Indiana is one of a few states that sets maximum limits for school districts for issuing new bonds, this prevents school districts from seeking high dollar referendums which can be common in other states. (see https://ballotpedia.org/School_bond_and_tax_elections_in_Indiana) ranges from 10 mil and 20 million			
iowa	new issues, exceed limit	In Iowa, school districts are held to a growth rate, there is a limit on how much they can increase spending in their budgets every year. Under Iowa Law, the growth rate is set to four percent; however, Iowa is different than other states as the Governor of Iowa and the Iowa General Assembly has the final say on whether the growth rate goes up or down. The growth rate is determined when the Iowa State Budget is deliberated.[3] If a bond issue gets defeated a school district must wait 60 days before issuing another ballot question	Yes		Yes

kansas	new issues, exceed limit	The aggregate amount of bonds outstanding at any one time (exclusive of bonds exempted from statutory limitations) cannot exceed 14% of the assessed valuation of taxable tangible property within the school district's geographical borders. However, the Kansas State Board of Education can issue an order authorizing a school district to vote and issue bonds in an amount exceeding the general 14% limitation.[4] Any request for a school district to have a bond election must be approved by the Kansas Department of Education. If the Kansas Department of Education approves the request for new bonds, then the school district can request the county election officer to hold an election at the next available election date.[5]		yes	
kentucky	new issues	Kentucky school districts have no restrictions when setting the terms of issued bonds. This means that school districts are free to choose the sale terms, whether bonds can be sold at, above, or below par value and the interest rate.[2] There are also no restrictions in Kentucky when bonds have to mature.[3] Bond issues cannot be used to build athletic facilities.[4] No advance notice is required			
louisiana	new issues				
maine	new issues	Bond issues in Maine must have a 25 year maturity date and cannot be sold below normal par value, a bond can be sold at or above normal par value.[5][6] Bonds for regional school districts and school administrative units cannot exceed 10 percent of the district's total debt valuation.[8][9]	Yes		
maryland	new issues only for Baltimore city and Baltimore County, all others are decided by Board of County Commissioners in the respective county where the school district is located must approve all bond issues	Bonds that are approved by Baltimore County voters must be payable on installment and must have a maturity of 40 years from the date of issuance.[2] All bonds approved in Baltimore County can be used for capital improvements.[3] All bonds cannot exceed 10 percent of total indebtedness in the county. For bond issues in all other parts of Maryland, the Board of County Commissioners in the respective county where the school district is located must approve all bond issues. All bonds can be used for new construction or general improvement of school facilities and must mature within 30 years.[5]. All bonds must be sold at, above, or below par value [6]			
massachusetts	none	handled by Massachusetts School Building Authority and the Massachusetts School Building Assistance Program, A formula is used to determine which districts receive funding.			
michigan	new issues, exceed limit	before a school board can place a bond measure on the ballot, the bond must be qualified through the Michigan School Bond Qualification and Loan Program, or SBQLP.		yes	
minnesota	new issues, exceed limit	All bonds must mature after 20 years			

mississippi	none	All bond issues for school districts are approved through the Mississippi Bond Commission, whose members include the Governor of Mississippi, Mississippi Attorney General, and Mississippi Treasurer acting in an ex-offico capacity.[5] The Bond Commission receives a list of all school districts that seek bonds through another agency called the Mississippi State Educational Finance Commission. The Finance Commission's list includes total bond amounts requested by districts against other requests and unpaid obligations, amount, and the purposes of the bonds to be issued, a schedule of future principal and interest requirements, amount of credit to be paid to school districts from past bond sale proceeds.			
missouri	new issues, exceed limit	Missouri has two different sets of provisions for requiring an election for the issuing new bonds for metropolitan, non-metropolitan, and urban school districts			
montana	new issues	"In order to issue bonds without going to an election, the school district must issue a resolution citing: The facts regarding the outstanding bonds that are to be redeemed. The reasons for issuing new bonds. The term and details of the new bond issue [2]."			
nebraska	new issues, exceed limit	Nebraska requires a ballot measure for school districts that issue new bond funding through a **sinking fund** levy.[6] Nebraska, like Michigan uses a sinking fund mechanism to fund bonding for school districts. Under Nebraska Law, sinking funds are either put in interest bearing accounts or distributed using treasury notes issued by the US Treasury Department.[7] Under Nebraska Law, school districts are allowed to use bond proceeds to: Purchasing a site for and erecting thereon a schoolhouse or schoolhouses or a teacherage or teacherages. Purchase or erection, or purchasing an existing building or buildings for use as a schoolhouse or schoolhouses, including the site or sites upon which such building or buildings are located, and furnishing the same, in such district Retiring registered warrants Paying for additions to or repairs for a schoolhouse or schoolhouses or a teacherage or teacherages.[8]			
nevada	exceed limit, or tax related	If a county school district needs to exceed the fifteen percent debt limit mandated by Nevada revised statutes. At the statewide level over state level school funding in regard to the Nevada budget.			
new hampshire	none	needs approval from School Building Authority, which is a five person board that consists of the New Hampshire Treasurer, the New Hampshire Commissioner of Education, and three other individuals that are nominated by the Governor of New Hampshire. The School Building Authority has been in place since 1967.[2]			

new jersey	new issues for construction and capital improvements	Under New Jersey law, school districts are charged anywhere from a minimum of twenty-five to a maximum of fifty percent interest. The New Jersey Legislature is required to have $105 million on hand at minimum to guarantee bonding for school districts at all times.[4] Another loan fund that issues bonds to school districts that requires voter approval is the New Jersey Public Schools Code Compliance Loan Fund. This separate fund that was approved in 1993 at the same time the New Jersey Public Schools Loan Assistance Fund by the New Jersey Legislature and former Governor James Florio. This fund is designed for school districts that need to renovate older buildings in order to be compliant with state and federal laws on school buildings. This includes asbestos removal, replacing HVAC equipment, or any other purpose to be compliant with state and federal health regulations.[5]	Yes		
new mexico	new issues protected by New Mexico constitution, exceed limits	The New Mexico Constitution limits all bonds to not exceed six percent of a school districts total taxable valuation of property.[2]			
new york	new issues, exceed limit, refundings	Refunding outstanding bonded indebtedness.[1] The bond election requirement only applies to school districts with a population less than 125,000.[2]			
north carolina	exceed limits	2/3 limit on debt			
north dakota	seem to require voting (with supermajority) on bonds, cannot find direct evidence				
ohio	new issues, exceed limit	Before any ballot measure can be placed for bonds, the bonds must be approved by the Ohio School Facilities Commission			
oklahoma	new issues, exceed limit	For transportation and technology uses of bonds, the bonds cannot exceed ten percent of the district's total taxable valuation of property		yes	
oregan	new issues, exceed limit	All bonds cannot exceed 13 percent of a district's total outstanding debt.[2] The County Treasurer is the custodian of all bonds issued to school districts in the respective county and the terms of each bond vary as far for selling value and restrictions are dependent on the resolution approved calling for a bond issue referendum.[3]			
pennsylvania	new issues, exceed limit	there are limits to total amount			
rhode island	none	combination of state and local approval, Under Rhode Island law, it is up to the local governments to first approve all new building and renovations that do not require a referendum.[1] Rhode Island requires all new construction or renovations to be approved by the Department of Elementary and Secondary Education. The state approval requirement is there to ensure sure all buildings meet the Rhode Island's Department of Elementary and Secondary Education standards for technology.[2}			

south carolina	new issues, exceed limit	South Carolina, like Nevada structures its school boards at the county level and not by municipality.[1] The County Board of Education is required to have a ballot question for the voters of the school district to issue new bonds under South Carolina Law.[2][3] Under the law, all bonds must be sold at normal par value and have a mandatory, maximum maturity date of 25 years.[4] The first maturity for the bonds is three years after the date that the bonds were issued. School bonds in South Carolina can be used for capital improvements, which include building new facilities, improving existing facilities and facility acquisition.[5]			
south dakota	new issues	Under South Dakota law, a ballot measure is required for any proposed installment purchase contract, lease-purchase, or the issue of capital outlay bond certificates if the outlay bond certificate exceeds one and one-half percent of the taxable valuation of taxable property within the district.[1] There is no mandated election for exceeding a general or special education levy.[2]			
tennessee	none	All bonds in Tennessee must be approved by the Tennessee State Funding Board. This board considers the needs of a school district along with examining the school district's credit worthiness in terms of its current bond rating before a county government can issue a resolution calling for new bonding.[2] In Tennessee, the issuance and approval of new bonds comes by the approval of county governments in where the school district is located. In Tennessee, all bonds must be sold at ninety-eight (98%) percent of its value or higher. The bonds must be approved by a majority of the members of the county government where the school district is located. All bonds are exempt from any taxation in the State of Tennessee and must come with a zero (0%) percent interest rate with a maturity of 40 years from the date of issuance of the bonds.			
texas	new issues for capital improvements, new construction, and facility upgrades; to raise taxes	All new school bonds issued in Texas must be reviewed by the Attorney General of Texas in order to be valid.			
utah	new issues, exceed limit	The State of Utah uses a sinking fund mechanism in order to fund bond issues for school districts in the state. Bonds in Utah must be issued with a 40 year maturity date and they can be sold at, below, or excess of its par value.			
vermont	none	need approval from Vermont Educational and Health Buildings Financial Agency. The agency can set all necessary restrictions on bond issues such as value the bonds must be sold at, maturity, interest, and restrictions on successive bond issues. All bonds must have the full faith and credit of the State of Vermont.[2]			

virginia	new issues, to extend current bonds	Under Virginia law, school bonds that are issued by counties are not subject to any tax ceiling limit. However, they must take the issue to a ballot question for voter approval, but school bond issued by local government are not required to have a ballot question to issue bonds that come from the Virginia Public School Authority or to receive a Literary Fund loan.[3] A bond referendum is required if the county is issuing bonds on behalf of two or more school divisions in the respective county that they are located in.[4] A bond election is not required if the bond is coordinated by the municipality and the school district.[5]			
washington	new issues, exceed limit	No bond issue may exceed three-eighths of one percent of the district's total valuation of taxable property without voter approval. The three-eighths percent limit is uniform for all taxing districts in Washington State.[2]			
west virginia	new issues for capital improvements, exceed levy limits	No school district in West Virginia is authorized from issuing bonds or bond taxes that exceed two and one-half percent (2.5%) of the valuation of taxable property in the district.[2] A ballot question is required for any school district in West Virginia to issue new bonds or bond taxes.[3] Before a district can order a resolution for an election, an estimate must be conducted by a licensed engineer on the possible costs of the projects.[4] All bonds must be certified and approved by the West Virginia Attorney General[5] Once a school district's voters approve a bond issue, a resolution indicating the issuance of bonds must be approved by three-fifths of the respective board of education.[6]			
wisconsin	new issues, exceed limit	Under Wisconsin law, a school district is required to issue a referendum for new bonds if the total costs of the bonding cause the district's debt to surpass $1,000,000 or a maximum calculated through a formula in state law, whichever is less. Bond elections in Wisconsin are designated automatically as special elections for the purpose of school bonds of regardless of when the election is held. A bond referendum can be called via a resolution if approved by a simple majority of the school board or a petition filed with the signatures of 7,500 voters or twenty percent of the school district's registered voters, whichever is less. School districts are exempted from referendums if they are ordered by a state or federal court to remove hazardous substances or be in compliance with fire standards and the districts need to issue new bonds to pay for the state or federally mandated improvements. Also, no referendum is required if a new school district is created by detaching a former consolidated district or purchasing property.			
wyoming	new issues, special school tax, or to establish building fund	When obtaining approval for bond issues, school districts are required to hold two public hearings with an explanation of why the district needs the bonds. No school district can issue voter-approved bonds that have less than three percent of the bond proceeds to be put towards a district's reserve fund. Wyoming mandates that any school district cannot take more than ten percent of indebtedness of the total taxable property. All bond issues in the State of Wyoming must have a 25 year maturity date with the interest must be paid annually or semiannually.			

Table A2. Summary Table for Treated vs Untreated Groups

Panel A. Treated School Districts Only

Variable	Num Districts	Mean	Std. dev.	Min	Max
Ln prop taxes per pupil	62	7.80	0.52	6.82	9.13
Ln local capex per pupil	60	6.42	0.87	4.08	7.97
Ln state capex per pupil	62	2.40	2.94	0.00	8.45
Ln enrollment	74	8.81	1.05	5.67	10.85
Ln long term debt	64	5.55	3.78	0.00	9.47
Reduced and free meal ratio	74	0.47	0.24	0.00	0.89
Pct non-white, non-Asian	74	0.49	0.26	0.09	0.96
Unified dummy	74	0.50	0.50	0.00	1.00
High school dummy	74	0.24	0.43	0.00	1.00
Rural dummy	74	0.05	0.23	0.00	1.00
City dummy	74	0.65	0.48	0.00	1.00
Suburb dummy	74	0.15	0.36	0.00	1.00

Panel B. Untreated School Districts Only

Variable	Num Districts	Mean	Std. dev.	Min	Max
Ln prop taxes per pupil	169	8.02	0.75	6.08	9.84
Ln local capex per pupil	164	6.31	1.24	2.20	9.13
Ln state capex per pupil	169	1.57	2.66	0.00	8.42
Ln enrollment	210	8.60	1.12	5.24	10.85
Ln long term debt	172	7.07	3.25	0.00	10.56
Reduced and free meal ratio	210	0.41	0.27	0.00	0.95
Pct non-white, non-Asian	210	0.51	0.28	0.04	0.99
Unified dummy	210	0.51	0.50	0.00	1.00
High school dummy	210	0.11	0.31	0.00	1.00
Rural dummy	210	0.05	0.21	0.00	1.00
City dummy	210	0.62	0.49	0.00	1.00
Suburb dummy	210	0.25	0.43	0.00	1.00

Panel C. Not Assigned

Variable	Num Districts	Mean	Std. dev.	Min	Max
Ln prop taxes per pupil	257	7.85	0.69	6.11	9.57
Ln local capex per pupil	249	5.93	1.49	0.00	9.08
Ln state capex per pupil	258	1.07	2.33	0.00	8.63
Ln enrollment	268	8.13	1.23	4.99	10.85
Ln long term debt	266	5.61	3.90	0.00	10.50
Reduced and free meal ratio	267	0.48	0.25	0.00	0.99
Pct non-white, non-Asian	268	0.52	0.27	0.04	0.99
Unified dummy	268	0.41	0.49	0.00	1.00
High school dummy	268	0.11	0.31	0.00	1.00
Rural dummy	268	0.19	0.39	0.00	1.00
City dummy	268	0.38	0.49	0.00	1.00
Suburb dummy	268	0.26	0.44	0.00	1.00

Table A3. Mention of New Construction Has No Effect on Yes Votes

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
Dummy for New Construction	0.003	0.005	0.045	0.011	-0.056*	0.001
	(0.007)	(0.037)	(0.039)	(0.095)	(0.034)	(0.007)
New Construction x Pct Young Voters		-0.020				
		(0.296)				
New Construction x Pct Older Voters			-0.193			
			(0.171)			
New Construction x Pct Participation				-0.011		
				(0.125)		
New Construction x Pct Democrat					0.138*	
					(0.075)	
New Construction x Competitive District Dummy						0.009
						(0.019)
Dummy for HVAC	0.016**	0.016**	0.017***	0.016**	0.016**	0.016**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Dummy for Fire Safety	0.011	0.011	0.010	0.011	0.010	0.011
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dummy for Water	0.005	0.005	0.005	0.005	0.005	0.005
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Dummy for Playground	-0.009	-0.009	-0.009	-0.009	-0.009	-0.009
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Dummy for Earthquake-related	0.017	0.017	0.018	0.017	0.017	0.018
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Dummy for Mold	-0.020	-0.020	-0.020	-0.020	-0.020	-0.020
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Dummy for Leaks	-0.006	-0.006	-0.006	-0.006	-0.005	-0.006
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Pct Young Voters	-0.470**	-0.467**	-0.473**	-0.471**	-0.484**	-0.468**
	(0.188)	(0.200)	(0.188)	(0.188)	(0.188)	(0.188)
Pct Older Voters	-0.128	-0.128	-0.099	-0.128	-0.137	-0.126
	(0.112)	(0.113)	(0.115)	(0.112)	(0.112)	(0.113)
Pct Participation (num registered/eligible voters)	-0.048	-0.049	-0.047	-0.046	-0.052	-0.049
	(0.051)	(0.051)	(0.051)	(0.054)	(0.051)	(0.051)
Pct Registered Democrat	0.136	0.136	0.140	0.137	0.111	0.139
	(0.112)	(0.112)	(0.112)	(0.113)	(0.114)	(0.113)
Pct Registered Republican	-0.149	-0.150	-0.146	-0.149	-0.149	-0.148
	(0.099)	(0.099)	(0.099)	(0.099)	(0.098)	(0.099)
Dummy for Competitive District	-0.009	-0.009	-0.009	-0.009	-0.009	-0.010
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
Year FE's?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,228	1,228	1,228	1,228	1,228	1,228
R-squared	0.299	0.299	0.299	0.299	0.300	0.299

Standard errors clustered by School District in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A4. Actual Estimated Costs Boost or Have No Effect on Yes Votes

	(1)	(2)	(3)	(4)	(5)	(6)
	Pct of Yes Votes					
Dummy for Estimate of Tax Cost	-0.056***	0.050	-0.142**	0.038	0.010	-0.066***
	(0.015)	(0.048)	(0.069)	(0.145)	(0.072)	(0.017)
Estimated Cost Per 100K of House Value	0.001***	-0.003***	0.003*	0.003	0.000	0.001***
	(0.000)	(0.001)	(0.002)	(0.003)	(0.002)	(0.000)
Tax Cost Dummy x Pct Young Voters		-0.857**				
		(0.358)				
Estimated Cost x Pct Young Voters		0.030***				
		(0.008)				
Tax Cost Dummy x Pct Older Voters			0.383			
			(0.306)			
Estimated Cost x Pct Older Voters			-0.008			
			(0.007)			
Tax Cost Dummy x Pct Turnout				-0.121		
				(0.192)		
Estimated Cost x Pct Turnout				-0.003		
				(0.004)		
Tax Cost Dummy x Pct Registered Democrat					-0.165	
					(0.168)	
Estimated Cost x Pct Registered Democrat					0.002	
					(0.004)	
Tax Cost Dummy x Non-partisan District Dummy						0.049**
						(0.023)
Estimated Cost x Non-partisan District Dummy						-0.001
						(0.001)
Pct Young Voters	-0.478**	-0.486**	-0.473**	-0.498**	-0.469**	-0.481**
	(0.192)	(0.192)	(0.191)	(0.193)	(0.191)	(0.190)
Pct Older Voters	-0.220*	-0.225**	-0.236**	-0.233**	-0.222**	-0.222**
	(0.112)	(0.111)	(0.116)	(0.113)	(0.112)	(0.112)
Pct Participation (num registered/eligible voters)	0.042	0.043	0.045	0.059	0.044	0.041
	(0.050)	(0.050)	(0.050)	(0.053)	(0.050)	(0.050)
Pct Registered Democrat	0.193*	0.183	0.184	0.209*	0.203*	0.191
	(0.117)	(0.117)	(0.118)	(0.119)	(0.119)	(0.117)
Pct Registered Republican	-0.067	-0.076	-0.076	-0.051	-0.066	-0.069
	(0.103)	(0.102)	(0.103)	(0.104)	(0.103)	(0.102)
Non-partisan District Dummy	-0.006	-0.006	-0.006	-0.006	-0.006	-0.008
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
Control for Year and Year^2?	Yes	Yes	Yes	Yes	Yes	Yes
Control for bond and school district characteristics?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,228	1,228	1,228	1,228	1,228	1,228
R-squared	0.232	0.236	0.233	0.234	0.233	0.234

Standard errors clustered by school district in parentheses. *** p<0.01, ** p<0.05, * p<0.1