Relaxing Electoral Constraints in Local Education Funding

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Abstract

We study a California policy that loosened taxing constraints for some local governments by lowering the share of votes required to pass school capital improvement bonds. We show that the policy change yielded larger tax proposals that received less support from voters, yet led to a doubling of approved spending. We show that this effect is concentrated in more racially diverse jurisdictions and that loosening these electoral constraints completely closed the gap in funding between these areas. We develop an agenda-setter model of the interaction between local government officials and voters to illustrate potential mechanisms behind these results.

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1 Introduction

If voters do not like federal tax policy they can elect new representatives. At the local level, though, voters often have the option to directly deny the tax increases their elected officials propose, through ballot propositions, initiatives, and referendums. In fact, all but three states have a limit on either the taxing or spending abilities of local government (Mullins, 2010). As a result, local governments in the United States often have limited powers over their own budget. Most commonly, state laws require increases in local taxes be put to a public vote before they can be enacted.

In general, the need to put budgeting questions to a vote has been shown to reduce the level of spending (Funk and Gathmann, 2011; Feld and Matsusaka, 2003). However, the rules that govern these votes vary in myriad ways that can affect local budgets and downstream outcomes. States differ in the types of taxes or spending the rules cover: some only allow proposals for capital spending, for example, while others also include current expenditure spending. States also often limit the total amount of tax revenue or the tax rate, and vary in whether they adjust for inflation, changes in population, or growth in the property tax base. Certain election rules limit when governments can put proposals on the ballot, since local governments may use this timing flexibility strategically (Anzia, 2011; Kogan, Lavertu and Peskowitz, 2018; Meredith, 2009). Finally, states differ in the vote share required to approve the proposals, with many proposals requiring more than a simple majority. Despite this heterogeneity in rules, little is known about how they affect fiscal outcomes. This is a significant gap in the literature, given the millions of dollars in local funding at stake in each local election.

In this paper, we study a proposition in California that lowered the vote share required to approve capital funding for schools and community colleges. We use a difference-in-differences design around this policy change and data for over 4,000 local elections across the state over two decades. We estimate the effects of this policy change on the proposals made by affected districts, their outcomes at the ballot box, and the effect of the policy on eventual funding outcomes.

We first develop a theoretical model of the interaction between a school board and voters, building on the literature in local political economy (Romer and Rosenthal, 1982; Barseghyan and Coate, 2014; Coate and Ma, 2017). In our model, the school board makes a tax proposal that the voter can accept or reject. Thus, the school board has "agenda-setting" power to extract policies

closer to its preferences than that of the voter, if it desires to. However, uncertainty in how residents will vote hinders exercising this power. We use this model to show how a change in the required vote share affects the size of the proposals and the vote outcomes, and show how this depends on the divergence in preferences between voters and elected officials.

We have three main research questions. First, we examine whether the policy change affected the behavior of school boards and community college districts, changing their likelihood of using bonds, or changing the amount of funding they requested. We find that the policy change made districts no more likely to propose a bond relative to other jurisdictions. However, the size of the bond proposals increased substantially, by $48 per resident, or a 59% increase.

Naturally, the substantially larger bond proposals may result in lower vote shares. So, our second research question asks whether the performance of the proposed bonds changed as a result of the policy. School boards and community college districts may increase the amount of funding they ask for, knowing that larger bonds may still be approved despite lower vote shares. Conditional on proposing a bond, we find that the policy change resulted in bond proposals receiving a lower percentage of votes in favor. However, this decline was smaller than the 11 percentage point decrease in the vote share requirement. In other words, school boards and community college districts experienced declines in support for their proposals that were smaller than the full amount of the policy change. Thus, we observe no change in the probability that affected districts approved any kind of new funding, and large increases in the probability that they approved new bonds. Even though these districts submitted larger proposals that had less support from the electorate, they resulted in increases in the probability of success.

This leads to the third research question, which studies the overall effect of the policy change on funding outcomes. Ultimately, the funding provided by a proposed bond is a function of the size of the proposal as well as its ability to be passed. We find that the overall effect of Proposition 39, combining larger bond proposals and higher passage rates, was $57 per resident in additional dollars of bonds approved by local governments, a more than 100% increase.

To further understand this large effect of the policy change on overall funding outcomes, we investigate heterogeneity across jurisdictions. Specifically, our model suggests that the extent of a community's responsiveness to a change in the vote share requirement may depend on the degree of disagreement between the voters and their representatives. Empirically, we show that the effect

of the policy change on funding outcomes is larger in less racially and ethnically homogenous districts. Similarly, we find larger effects in jurisdictions with moderate poverty rates, and larger populations. While these results do not imply a causal effect of these characteristics, they do tell us in what sorts of districts this policy had the largest impact. Most notably, we find that the jurisdictions with the lowest levels of bond funding prior to the policy change saw the largest impacts of the policy. In fact, these differences in treatment effects imply that the most diverse areas were able to completely close the gap in bond funding with the areas that had the highest levels of bond funding prior to the policy change.

Our paper makes several contributions to the literature. First, we contribute to empirical evidence on the fiscal and policy effects of tax limits. Papers in this literature generally find that constraints to local governments finances change the quality of public services (Figlio and Rueben, 2001).[1] These papers tend to study the effect of the existence of local tax limits. However, this paper studies a particular characteristic of the limit itself. We show that the vote share required to pass public spending has large effects on the amount of spending both proposed and implemented.

We also contribute to a literature on the support for public goods in diverse communities. We show how the effects of the loosened electoral constraint differ by the racial makeup of the jurisdiction. A broad literature has found that diversity is related to decreased support for government (Alesina, Baqir and Easterly, 1999; Dahlberg, Edmark and Lundqvist, 2012). However these findings have been found to not be robust to alternative specifications (Boustan et al., 2013). Closely related to our work is Rugh and Trounstine (2011) who show that more diverse cities propose fewer, larger municipal bonds than less diverse cities but end up authorizing similar levels of debt. The strategic proposals they document could drive the differential response to the policy change we study. Recent work has shown that increased diversity among local elected officials results in less spending on public goods (Beach and Jones, 2017). Our results suggest that in more diverse places, elected officials would prefer a higher level of spending than the voters.

The remainder of the paper is organized as follows. In the following section, we provide further detail about local government funding and the policy change we study, in section 3 we describe our model, in section 4 we describe the data we use, in section 5 we explain the empirical method, in section 6 we describe our results, and in section 7 we conclude.

[1] See Poterba and Rueben (1995); Dye and McGuire (1997) and the survey by Rose (2010).

2 Background

Our study focuses on funding for capital investments in local governments in California. Local governments with the power to tax include cities, school districts, community college districts, counties, and special districts that provide a particular service, such as airports, parks, water, and transit. In this section, we outline the options for these governments in generating revenue for investments.

2.1 Local government funding

California local governments are restricted from increasing property taxes, but can generate additional revenues by increasing other taxes or issuing bonds. What instruments are available differ depending on the type of government.

With property taxes unavailable, local governments can use sales taxes, business taxes, utility taxes, and parcel taxes.[2] All these types of tax increases are subject to voter approval, though the first three are available only to counties and cities, and not school districts. While taxes can be used for regular annual expenses of the government, bonds in California can only be issued to fund capital investments. Bonds can either be revenue bonds or general obligation bonds. Revenue bonds, which do not require voter approval but must fund investment in a revenue generating asset, are only useful for local governments that have such revenue-generating assets to fund, such as a toll highway. In contrast, general obligation (GO) bonds do require voter approval, are backed by the full faith and credit of the issuing government, and are repaid with property taxes over many years. California school districts primarily rely on GO bonds rather than parcel taxes, perhaps because parcel taxes are less lucrative than GO bonds (Brunner, 2001). In other states the use of property taxes is more prevalent.[3]

In the case of school capital expenditures, the state also plays a prominent funding role. State funds typically come from statewide GO bonds, which require a statewide vote. At the time of the vote on Proposition 39, in most cases the state typically paid for 50% of new K-12 school facilities and 80% of the cost of modernizing existing facilities. The local district would pay the remaining

[2] Parcel taxes, which are available to all forms of local governments, are a flat tax on each real estate parcel, unlike property taxes which are ad valorem taxes on the value the properties.

[3] For more information on the scope of local finance in California across different types of jurisdictions, see Rueben (2003).

amount out of bonds passed via referendum.[4]

School districts are not the only local education jurisdictions that can raise additional revenue. There are 73 community college districts in the state, representing 114 individual colleges and comprising the largest public postsecondary system in the country. These districts have the ability to fund their capital investments through the same restrictions as school districts, governed by Proposition 13 and other legislation. That is, community college districts can issue GO bonds and parcel taxes, though in practice they tend to rely on GO bonds for the same reasons as school districts. The state funds 100% of community college facilities when the legislature specifically authorizes the project, but otherwise the district can use local bonds to pay the full cost of any projects.

2.2 Proposition 39

In California, a series of court decisions and the passage of the Proposition 13 amendment to the state constitution in 1978 drastically limited the ability of school districts to fund education using local resources, placing greater responsibility on the state government. It was difficult for local school districts to fund school facility investments during this time and so spending on capital investments plummeted. In 1984, the passage of Proposition 46 allowed school districts to issue general obligation (GO) bonds to finance school construction projects. Local school boards could propose a bond and put it on the ballot in a referendum, where it required a two-thirds majority to prevail.

Following concerns that school facilities were not receiving enough investment under this system, California voters considered two consecutive propositions in 2000, which would have made it easier for proposed bonds to win the approval of voters. First, in March 2000, California voters rejected Proposition 26, which would have decreased the voting threshold from a two-thirds super-majority to a simple majority. Then, in November 2000 voters approved Proposition 39, which lowered the threshold needed to pass a general obligation bond to 55 percent for K-12 districts and community college districts.[5] It was accompanied by legislation that placed additional requirements on school bonds to qualify for the 55 percent level. Most notably, it required that

[4] In some "hardship cases" the state would pay the entire cost of new facilities or modernization.

[5] Balsdon et al. (2005); Brunner and Ross (2010) study what can be inferred from the difference in votes on Propositions 26 and 39.

bond referenda occur during a statewide election or regularly scheduled local election rather than a special election. In addition, it required a two-thirds majority of the governing board approve the proposal (rather than a majority) and set a maximum amount for the tax rate levied to repay the bond.[6] Bond proposals that did not meet these requirements would not qualify for the lower 55% vote requirement. Following the passage of the proposal, the new voting threshold and rules went into effect in 2001.[7]

Figure 1 shows the number of education related local general obligation bonds proposed and passed under these provisions each year. There is a clear change in 2001, after the new policy took effect. The number of proposed and passed bonds increases and they are far more concentrated in even years than odd years. This is consistent with the accompanying legislation restricting when the referendum could occur. Most statewide elections and regularly scheduled local elections occur in even years. Prior to the policy change, bonds were approximately equally likely to appear in even and odd years.

Figure 2 shows the distribution of the vote shares in favor of proposed education bonds separately before and after the change in vote requirement. The two vertical lines show the required vote share before and after the passage of Proposition 39. It is clear that the distribution of vote shares shifted downward over this time frame. Moreover, this shift seems to have occurred at all parts of the distribution, with the median at approximately 70% of votes in favor in the years prior to the change and approximately 64% of votes in favor following the change. This drop of 6 percentage points is less than the drop in the required vote share—11.7 percentage points—dictated by the policy. Relatedly, there was an increase in the share of proposed bonds that passed, seen as the increase in the mass of the curves above their respective vote share thresholds. Appendix Figure A2 shows the cumulative density functions of vote shares separately by year, and shows a clear jump following the 2001 legislation.

[6] The proposition itself also required that the bond funds only be used for facilities or equipment investments, the proposal include a specific list of school projects to be funded, and the district conduct annual independent audits on the use of the funds.

[7] In the first year under the new rule, many referenda did not qualify for the new lower level and operated under the old two-thirds threshold

3 Conceptual Framework

Before turning to quantitative estimates of the effect of Proposition 39, we develop a framework that organizes our thinking of the expected effects of this change on the size and outcome of proposed referenda and what characteristics drive the magnitude of these effects.

We develop a simple model that considers the interaction between a representative politician and voters in setting a local government's expenditure on a public good. The voters desire a certain level of the policy but the politician may prefer a higher level. There is a status quo level, and the politician has the option to make a proposal to fund spending on the public good. If they make no proposal or if the proposal fails to receive the required support among voters, the status quo level of funding is implemented.

The level of the public good is denoted g. Voters have quadratic distance policy preferences given by $-(g-\theta)^2$, so that their utility declines symmetrically as the policy diverges from their ideal point, θ. The politician has similar distance policy preferences $-(g-\theta-b)^2$ where b represents the degree of disagreement between the politician and voters about spending. We assume b is positive: the politician always prefers higher spending than their constituents. .

The sequence of events is as follows. First, the politician chooses whether to propose a referendum to adopt a public good level g' rather than the reversion level, g. If they do not propose a referendum the reversion level is adopted. If they do propose a referendum the voters then vote yes or no. If the share of voters voting yes is at least v, g' is adopted. If the vote share is less than v, then g is adopted. We assume that at minimum a simple majority is required and so v is at least one half. Further, we assume that the politician's preferred level of the public good, $\theta + b$, exceeds g.

In order to introduce uncertainty in the outcomes of proposals, and hence allow the model to rationalize failed proposals, we assume that there are shocks to voters preferences for the proposal. In the fashion of a probabilistic voting model, voter i will vote in favor of a proposal g' if

$$-(g'-\theta)^2 \geq -(g-\theta)^2 + \sigma_i + \delta,$$

where σ_i is an idiosyncratic preference shock representing voter i's bias in favor of the reversion

level and δ is a preference shock in favor of the reversion level that is experienced by all voters.[8] σ and δ are both uniformly distributed random variables; the former over the range $[-\phi, \phi]$ and the latter over the range $[-\psi, \psi]$. Thus, all voters with $\sigma_i \leq -(g'-\theta)^2 + (g-\theta)^2 - \delta$ will vote for the proposal. Under the distributional assumptions on σ_i and δ, the fraction of voters who will vote yes and the probability that the proposal prevails both have simple solutions.

The fraction of voters who will approve a proposal is given by

$$P\Big[\sigma_i \leq (g-\theta)^2 - (g'-\theta)^2 - \delta\Big] = \frac{\phi - (g'-\theta)^2 + (g-\theta)^2 - \delta}{2\phi}. \tag{1}$$

The probability of a proposal passing is:

$$p(g', v) = \frac{(g-\theta)^2 - (g'-\theta)^2 - \phi(2v-1) + \psi}{2\psi}. \tag{2}$$

This probability is increasing in the voter's preference for it relative to the reversion outcome and decreasing in the vote share required to win. As the variance of the voting shocks increase, it matters less what the proposal is, as more of the outcome is random.[9]

When choosing what proposal to make, the politician knows how the shocks are distributed but does not know their realizations. Since they are uncertain whether any proposal they make would pass, they will choose their proposal so as to maximize their expected utility over the possible outcomes. The politician's preferred proposal must then satisfy the first order condition

$$\frac{g'-\theta}{\psi}\Big[(g'-\theta-b)^2 - (g-\theta-b)^2\Big] - 2p(g', v)(g'-\theta-b) = 0 \tag{3}$$

If there is no disagreement between the voter and the politician and thus b is zero, the politician's optimality condition is satisfied when they propose the voter's (and hence their own) preferred level. This is true regardless of the vote threshold or level of uncertainty. When there is disagreement (i.e. $b > 0$) the distance between the status quo level of funding and the voter's preferred level determines the magnitude of the politician's agenda setting power. When this is large, the politician

[8] These preference shocks add uncertainty to the voting outcome in a tractable way. See (Persson and Tabellini, 2000) for a discussion of this method.

[9] Specifically, if aggregate uncertainty is very large, all proposals will have a 50% chance of passing, while if idiosyncratic uncertainty is high all proposals are expected to get approximately 50% of the vote and so will pass or not pass depending on whether 50% is sufficient for the proposal to prevail.

will propose a level closer to their own ideal level.

However the politician will never propose exactly their ideal level. The optimal proposal g' will always exceed θ and be less than $\theta + b$. To see this note that for any proposal less than θ, a small increase in its size increase both the chance that it would prevail and the politician's payoff if it did. Proposing the voter's optimum will also not be optimal because a small increase in the proposal will have a larger effect on the politician's payoff than it will on the probability it passes. Similarly, the politician would never choose to propose something larger than their ideal level. Further, proposing their own ideal level will never be optimal because a small decrease in the proposal would have only an infitessimal effect on the politicians possible payoff and a relatively large effect on the probability their proposal prevails.

The policy change we study is equivalent to a change in the vote requirement, v. We are interested in how this alters the proposed level of spending, its likelihood of success, and the resulting public good levels. The former is given by

$$\frac{dg'}{dv} = \frac{\phi(g'-\theta-b)(g'-\theta)}{\psi bp(g',v) - 2(g'-\theta)^2(g'-\theta-b)}. \tag{4}$$

In the case of no disagreement, then since the proposal will take on the voter's optimal, a change in the threshold will not matter. With disagreement, an increase in the vote threshold will result in a decrease in the proposal. The effect of a small change in the threshold on the probability that the proposal prevails is given by

$$\frac{dp(g')}{dv} = \frac{-\phi}{\psi}\left[\frac{(g'-\theta)^2(g'-\theta-b)}{\psi bp(g',v) - 2(g'-\theta)^2(g'-\theta-b)} + 1\right]. \tag{5}$$

This expression is negative, so a small decrease in the threshold will increase the probability of passage even if there is no disagreement. With disagreement, a small decrease in v will increase the level of the proposal, g', and also increase the probability of the proposal passing. In effect, the politician will use some of their new flexibility on a better proposal and some on an increased likelihood of it prevailing.

What then determines the magnitude of these effects? The effect of a change in v on both the size of the proposal and its likelihood of passing depends on the level of disagreement b as well as

the level of uncertainty in the outcome of the election, governed by ψ and ϕ. The expressions in equations 4 and 5 are both decreasing in b and ϕ, suggesting that larger levels of disagreement between voters and bureaucrats, and greater uncertainty in election outcomes, will result in greater sensitivity to v. However, the indirect effect of the larger bias and uncertainty on proposals means that situations can arise in which these results are reversed.

In the context of school facilities spending, we do not observe g and g'. Instead we observe a proposed investment in the pre-existing stock of school facilities. This proposal is equivalent to $g' - g$. If the proposal fails, the reversion level is g the depreciated existing capital stock. The expected level of school facility investment is then $p(g', v)(g' - g)$. The effect of an increase in vote requirements on this quantity is equal to $\frac{dp(g')}{dv}(g' - g) + p(g', v)\frac{dg'}{dv}$. From equations 4 and 5 we know this is negative.

In sum, the model presents a framework for understanding the effect of a change in the vote requirement on the behavior of local officials and voters. It shows how the change in policy that we study effects the proposals made by officials and how voters will vote on them. Specifically, it predicts that a decrease in the vote requirement results in larger proposals with a higher likelihood of passing. The model also suggests that the level of disagreement between voters and their representatives may dictate the scale of the effect of a decrease in the vote share threshold. In the next section, we turn to the empirical specification to test these predictions.

4 Data

We combine various sources of administrative and publicly available data on all public schools in California over the past two decades. Our main source of data is the set of all election results for all local measures in California between 1995 and 2016. These data, similar to what Cellini, Ferreira and Rothstein (2010) and others have used, come from the California Election Data Archive (CEDA), a project of the Center for California Studies at California State University, Sacramento. We include elections from counties, municipalities, community college districts, and K-12 school districts. Our set of measures includes all those that would have authorized new, increased, or renewed taxes, although many estimates are limited to only general obligation bonds.[10]

[10] A notable omission from this dataset is the set of elections at special districts. These are available from another source, the California Debt and Investment Advisory Commission (CDIAC), but this dataset omits odd year elections prior to

For each measure in the CEDA dataset, we observe the full text of the ballot question, which includes the proposed dollar amounts for general obligation bonds. We also observe whether the measure passed and the number of votes for and against, from which we calculate the share of voters who voted for passage. Over the time period we study there were 4,520 tax related measures. There are ten different types of measures included among these: GO bonds, other bonds, business taxes, overrides of the Gann limit, Mello/Roos bonds, parcel taxes, sales taxes, transient occupancy (hotel) taxes, and utility taxes. Of all the measures, 2,075 (46%) were for GO bonds.

We complemented the CEDA dataset with other sources of publicly available information. We use school and district-level information on student demographics and proficiency on standardized tests from the Common Core of Data. We use Decennial Census information from 2000 for population counts, demographics, and socioeconomic characteristics of each local jurisdiction. Counts from the Census are readily available for counties, municipalities, and school districts. Census tabulations are not available for community college districts, however. To produce counts of the number of residents in a community college district, we overlaid their current boundaries, available from the Foundation for California Community Colleges, with a map of Census tracts. We then estimated the proportional overlap of tract-level population with the college districts.[11]

In sum, we create two analysis datasets. The first is a "jurisdiction-level" panel dataset. This panel consists of 1,589 jurisdiction-year observations from 1995 to 2016, comprising 977 K-12 districts, 482 cities, 72 community college districts, and 58 counties. For each observation, we observe the number of relevant elections held and passed, the number of GO bonds proposed and approved, and the amount of GO funding per capita proposed and approved.

The second dataset is an "election-level" dataset with the full set of 4,520 elections between 1995 and 2016. For these, we observe the jurisdiction, purpose, and vote share. Notably, this dataset include GO bonds as well as the nine other types of measures.

Table 1 shows summary statistics of the jurisdiction-level panel, by jurisdiction type, prior to the passage of Proposition 39. Between 1995 and 2000, almost half of the school districts proposed a GO bond, as did one fifth of community college districts. The other jurisdictions in

2001, making it unusable for studying the effects of Proposition 39.

[11] Community college districts are not coterminous with Census tracts. Tracts that overlap multiple districts contribute population to the districts in proportion to the area in each district. A limitation of this approach is if there are large differences in population density within a tract.

the sample—cities and counties—were much less likely to propose this type of funding. This makes sense given that these jurisdictions have a wider set of fundraising tools than school and community college districts. On the other hand, cities and counties were much more likely to put other types of funding proposals, primarily changes in property taxes, on the ballot. Passage rates of GO bonds and other elections did not vary across jurisdiction type. Education-related GO bonds tended to be much larger than the GO bonds proposed by counties and cities.

5 Empirical Approach

In this section, we describe our strategy to empirically investigate the effect of the change in vote requirements on the behavior of local governments, voters, and the resulting levels of capital education spending. We examine two types of effects. First, how did Proposition 39 change the behavior of affected jurisdictions relative to unaffected jurisdictions, and second, how did Proposition 39 change the content and performance of education-related general obligation bonds relative to other proposals. We use a difference-in-differences strategy to identify both types of effects. However they require two different types of datasets. We first describe the unconditional approach to answer the first set of questions and then the approach conditional on proposing a bond, which we use to answer the second set of questions.

5.1 Estimating effects on government behavior and outcomes

The reduced vote requirement applied to school districts and community college districts. Other types of local governments that can issue bonds and levy taxes—counties, municipalities, and special districts—were unaffected. The primary empirical specification takes the regression form

$$Y_{it} = \alpha + \beta(education_i * post_t) + \nu_t + \gamma_i + \varepsilon_{it}, \tag{6}$$

where Y_{it} is the outcome in government i, in year t, $education_i$ is a binary variable indicating whether the government is an education provider and hence affected by the policy change, $post_t$ is a binary variable equal to one when the year is 2001 or later, ν_t represents year fixed effects, and γ_i represents government fixed effects. Under the typical difference-in-differences common trends

assumption that absent the policy change, the outcome would have evolved the same in school and community college districts as it did in counties and municipalities, β represents the causal effect of the reduction in the vote requirement. In this setting, the common trends assumption requires that educational districts on average experience the same year to year shocks that drive capital investment as counties and municipalities. If these shocks are driven by the demand for public services that are shared by all government types, like those driven by population growth, this would be a reasonable assumption.

We consider this as an *unconditional* analysis because the equation 6 specification includes all jurisdictions, whether or not they made a proposal that year. We use this specification to estimate the effect of the policy change on the likelihood of proposing and passing GO bonds following the policy change, as well as the total amount of proposed and approved funding per capita. To estimate these effects we use our jurisdiction-level panel, described earlier, which has data on 1,589 jurisdictions from 1995 to 2016.

5.2 Estimating effects on election outcomes

In order to examine the mechanism through which these changes are occurring, we also estimate several models which condition on a referendum being held. In these models, we continue to employ a difference in difference design but the level of observation is a proposed tax-related measure rather than a government. These take the similar regression form

$$Y_{imt} = \alpha + \gamma(education_m * post_t) + \xi_t + \zeta_i + u_{imt} \tag{7}$$

where Y_{imt} is the outcome for voted measure m which took place in government i and year t, $education_m$ is a binary variable equal to one if measure m took place in a school district or community college and all other variables are the same as in Equation 6. Again, standard errors permit clustering at the government level to allow for serial correlation.

We use this conditional analysis to examine the effect of the policy change on two outcomes, the vote share in favor of the bond and the probability that a bond passes. However, because officials may respond to the policy change by proposing bonds in situations that they would not have prior to the change, (in fact this is part of what we test in the unconditional analysis) care must be taken

in interpreting them. This analysis cannot be interpreted as the effect of the policy change on the level of support for increased spending. Instead, it is the effect of the change on the level of support for the proposals that the officials choose to make.

5.3 Outcomes

We use these frameworks to consider the effect of the policy change on various outcomes. First, using the unconditional analysis we analyze whether Proposition 39 caused affected jurisdictions to hold more elections or propose additional bonds.

Second, we examine the value of the proposed bonds. In the unconditional analysis using the jurisdiction panel we frame Y_{it} as the total amount of funding through bonds that the jurisdiction proposed, per capita. Jurisdictions that did not propose any bonds that year receive a value of zero. In the conditional analysis using the election dataset Y_{mt} becomes the per-capita funding of each bond.

Third, we examine the vote shares received by various elections. The required vote share for affected elections declined from two thirds to 55%, or a decline of 11.7 percentage points. We can only conduct an analysis of vote shares using the election dataset. However, we can also observe pass rates using both conditional and unconditional analyses.

Finally, we can also observe the resulting funding amount, in the unconditional and conditional cases. We observe the changes in the proposed amount as well as the changes in the pass rates, but the most policy relevant variable is the resulting amount of education funding from Proposition 39.

6 Results

We organize the results according to the three main research questions. First, did Proposition 39 change the behavior of school boards and community college districts in terms of their likelihood of proposing a GO bond, and the size of the proposal? Second, how did the performance of GO bonds from educational jurisdictions change? Third, what were the effects of Proposition 39 on funding outcomes?

6.1 Government Behavior

We first present results on the proposals made by jurisdictions. Table 2 displays the results from regressions of the form described in equation 6, using the jurisdiction-level panel. The coefficients shown in the table are the differences-in-differences estimates: the interaction between indicators for being an education-related jurisdiction and the post-Proposition 39 years. The first two columns show the effect of Proposition 39 on the likelihood that a jurisdiction would propose a GO bond. The regression shown in column 1 includes year fixed effects and a full vector of government-level fixed effects while column 2 replaces the year fixed effects with seperate year fixed effects for each county to narrow the comparison to within county differences between education and non-education governments. In both columns, the estimate is small and not statistically significant: overall, education jurisdictions were not more likely than other jurisdiction to propose bonds after 2001.

Panel a) of Figure 3, however, shows that the story is more complicated. There are large changes in the timing of when GO bonds are proposed. The figure shows estimates of a generalized differences-in-differences model, plotting the difference in the outcome across treated and untreated jurisdictions in each calendar year, and controlling for jurisdiction fixed effects. One of the stipulations of Proposition 39 is that votes on GO bonds subject to the lower vote threshold could not be held in special elections. Since regularly scheduled elections are typically in even years this is likely the reason for the jagged shape of the figure, as affected school and community college boards switch the timing of their GO bond proposals in order to qualify for the lower threshold.[12]

Columns 3 and 4 of Table 2 shows the effect of Proposition 39 on the amount of GO bond funding proposed by jurisdictions. Like with the previous outcome, column 4 contains year by county fixed effects while column 3 includes only year fixed effects in their place. The estimate here is statistically significant and large, implying a 59 percent increase in column 3 and a 79 percent increase in column 4.

Panel b) of Figure 3 shows estimates of a generalized differences-in-differences model, plotting the difference in the outcome across treated and untreated jurisdictions in each calendar year,

[12] These effects could come from the treated jurisdictions changing their behavior, but also from the non-treated jurisdictions also strategically timing their elections. We see no obvious evidence that the pattern of when non-education jurisdictions timed their bonds changed after 2001, as shown in Appendix Figure A1.

and controlling for jurisdiction fixed effects. The figure again shows the pattern of even and year elections following the policy change.

The policy change has two opposing effects on the proposal behavior of governments. On the one hand, the policy change makes bonds more likely to pass and hence more attractive to propose. On the other hand, when bonds fail, governments often propose new bonds in subsequent years so if bonds are more likely to pass it may take fewer proposals before one is passed. These results show that the sum of these two effects resulted in treated jurisdictions proposing a greater sum of total capital spending while being no more or less likely to propose a GO bond. The former effect is, empirically, quite large.

6.2 Election Outcomes

In this section, we present results showing the effect of the policy change on the performance of the elections that are proposed. For this analysis we rely on estimates of equation 7. We use the election dataset, which consists of every election for a funding purpose across the different types of jurisdictions. Treated elections are GO bonds proposed by school and community college districts, and control elections are GO bonds at other districts, as well as elections that were not GO bonds. The reported estimates show whether the performance of GO bonds differentially changed following the passage of Proposition 39 for education districts relative to funding proposed by other jurisdictions.

Columns 1 and 2 of Table 3 show a decline in vote share, of between 7 and 8 percentage points. Notably, the confidence interval does not include a decline of 11.7 percentage points, the amount that the vote requirement declined when Proposition changed the requirement from 2/3 to 55 percent. As shown in the previous table, the policy change causes governments to propose more spending, which may decrease the fraction of voters that are willing to support it. However, the change in the size of proposals—and other features of the proposal that we do not measure which may also change—are not sufficient to drive the vote share down by the full amount of the policy change.

The third column limits the sample to just GO bonds, which reduces the number of elections considerably, and increases the standard error. This analysis compares the performance of GO bonds at education-related districts to GO bonds at other districts. For this approach we cannot

include government fixed effects or year-by-county fixed effects since many of the jurisdictions only proposed one GO bond throughout the sample period. Nevertheless, the coefficient suggests that GO bonds for educational purposes had vote share declines of 5 percentage points relative to GO bonds for other purposes, and we can again rule out a drop of 11.7 percent.

Panel A of Figure 4 shows the year-by-year progression of vote shares, separately estimating the difference-in-differences coefficient each year in an event study framework. There is a flat trend in the years prior to the passage of Proposition 39, followed by a decrease in 2001 that continues in later years. Towards the end of the sample period, the estimated effect on the vote shares approaches the 11.7 percentage point decline in the vote requirement.

The next three columns of Table 3 show the effect of Proposition 39 on the likelihood that a GO bond would pass. We find no effects that an education GO bond would pass relative to taxes and to GO bonds in other jurisdictions. However, limiting the sample to just GO bonds, we do find that education GO bonds had a 21 percentage point increase in passage rate compared to GO bonds for other purposes. Panel B of Figure 4 shows the analogous year-by-year effect of the policy change.

6.3 Funding Outcomes

The final set of results shows the effects of Proposition 39 on outcomes. Did the change in vote share required to pass an education-related GO bond affect education funding? The previous findings suggest that overall funding should have increased, since we found that bond size increased, as did passage rates.

Here we turn once again to the jurisdiction-level panel and are interested in outcomes at the jurisdiction level. The first two columns of Table 4 show that, following the policy change, affected jurisdictions are slightly more likely to pass GO bonds than before. However, panel a) of Figure 5 shows that this small positive effect hides strong positive and negative effects caused by the shifting of GO bond proposals to even-year elections. Overall, however, the effect of jurisdictions changing the timing of their GO bond proposals is a small change in overall GO bond passage rates.

Columns 3 and 4 of Table 4 show the effect of Proposition 39 on school funding outcomes. We find that bond funding in treated jurisdictions increased by $58-$66 per student, a more than 100% increase. This effect is larger than our estimate of the amount of proposed GO bond funding because of the added effect of the increased likelihood of approval. Once again, Panel B of Figure 5

shows that this positive effect on overall education funding is concentrated in elections occurring in even years. Appendix Table A1 shows the main results, for both the jurisdiction-level and election-level panels, excluding community colleges. The results are almost identical.

6.4 Heterogeneity in Responses to the Policy Change

Our theoretical model suggested that the responsiveness of a jurisdiction to a decrease in the vote share threshold could vary by the extent of the disagreement between voters and their representatives, as well as with the magnitude of the elected official's uncertainty over how the citizens will vote. We study these issues by examining heterogeneity in the effects across jurisdictions with varying levels of diversity. If more racially or ethnically diverse places have larger levels of disagreement between voters and officials we would expect, in most circumstances, the effect of the policy change to be larger than in less diverse places.

We do this in two ways. First, we re-estimate equation 6, the effect of Proposition 39 on unconditional jurisdiction-level outcomes, and include an interaction term for whether the jurisdiction's non-white and Hispanic residents make up a larger or smaller share of total residents than the median jurisdiction. Table 5 shows these results, which are comparable to those in Tables 2 and 4. The coefficient on "Post x Treat x High Minority" represents the difference in the effect between governments above the median percent non-white or Hispanic and governments below it. This median is calculated based on the 2000 census and is approximately 36%.[13] Columns 1 and 2 show that we cannot reject the hypothesis that the effect on proposing bonds is the same in high and low minority districts. However, the point estimates suggest that any positive effect is coming from high minority districts.

The results in columns 3 and 4 show similar results for the amount of bonding proposed, with no differential effects between high and low minority districts. Columns 5 and 6 show that the policy change had a larger effect on the propensity of high minority districts to approve a bond, while columns 7 and 8 show that high-minority districts were also more likely to approve more funding. These results suggest that the effects shown in the previous sections are in general marginally concentrated districts with high minority population shares.

[13] This is substantially lower than the overall percent minority in the state at that time due to the fact that non-white and Hispanic residents are more likely than white residents to live in larger jurisdictions.

In order to investigate if homongeneity is correlated with large effect sizes rather than simply minority shares, we explore whether these differential effects of Proposition 39 across districts are linear in the minority share. To do this, we estimate equation 6 allowing the effect of the policy change to differ by quintiles of the distribution of minority residents. Figure 6 plots the coefficient estimates for each quintile, with the horizontal axis being the share minority in each quintile. The first panel of the figure has a distinct concave shape. The shape suggests that districts with the highest or lowest share of minority residents—the most homogeneous districts—are the ones where the likelihood of bond passage was least affected by the loosening of the electoral constraint. In fact, districts with the lowest share of minority residents had a coefficient close to zero, and not statistically significant. On the other hand, the most diverse districts had the highest treatment effects.

The second panel of the figure shows a similar shape for the effect on funding outcomes. Because of the difference in the effect on passage rates across districts, more diverse districts reached higher levels of per-resident funding than more homogenous ones. Appendix Figure A3 shows these figures with controls for county-year fixed effects, and the results are almost identical. The third and fourth panels of the figure show the pre-treatment means by quintile. The figures show that the jurisdictions with the lowest pre-period per-capita funding were the ones with the largest treatment effects. In other words, Proposition 39 was able to close the gap in per-capita funding between jurisdictions. For example, prior to 2001, the difference in passed funding per resident between the bottom quintile—the jurisdictions with the highest share of white residents—and the middle quintiles, was approximately $18 per resident. The difference in treatment effects, however, favored the middle quintile by almost exactly the same amount.

We do not claim that the relationship between the minority share and the effect sizes is causal. A jurisdiction's minority share is correlated with other features of its population, such as income. Figure 7 shows estimates of equation 6 at quintiles of the poverty rate. There is a similar hump-shaped relationship as for the minority share: jurisdictions with the highest and the lowest poverty rates are the least likely to pass a bond and, conditional on passing a bond, raise the least amount of funding. Here, though, the gap between the lowest-poverty jurisdictions and other jurisdictions remained high. The gap between the highest-poverty and lowest-poverty jurisdictions was approximately $50 per resident prior to 2001, and Proposition 39 actually increased that

gap. However, Proposition 39 did seem to close the gap between the lowest-poverty areas and the second quintile, almost completely closing a gap of more than $40. This figure is comparable to the previous figure, which showed that the most diverse areas–those in the middle of the distribution with respect to their non-White share of residents–were the ones that were able to close the gap.

Figure 8 shows a comparable analysis at quintiles of the jurisdiction's (log) population. Here there is a positive relationship, with the largest jurisdictions being the most likely to pass a bond. Larger jurisdictions also approved larger amounts of funding per resident after the legislation. This makes sense, as there is hump-shaped relationship between a jurisdiction's population and the share of its residents who are non-white. Appendix Figure A4 shows the correlation between a jurisdiction's non-white share of the population and both its population and poverty rate.[14] The largest jurisdictions also had the lowest per-resident funding prior to 2001 so, again, Proposition 39 closed this gap.

The final facet of heterogeneity we consider is in the age distribution of the jurisdiction. Older and senior citizens consistently have the highest rates of voter turnout (McDonald, 2017). These voters tend to be more fiscally conservative, and since they are less likely to have children in school might also be less likely to vote for taxes aimed at expensive school construction projects. On the other hand, this effect could be counteracted by the fact that school improvements can be capitalized into higher housing prices. Figure 9 shows how estimates of equation 6 vary by quintiles of the share of the jurisdiction that is over 65. There is a downward trend, with the oldest jurisdictions being much less likely to vote for new construction projects.

7 Conclusion

In this paper, we analyze how a legislative change to the voting threshold required for passing a school bond in California affected the share of voters who supported such bonds. We find that school bonds saw a drop of six percentage points in voter support following a decrease in the voting threshold by 11 percentage points from two-thirds to 55 percent. In addition, we show that governments were no more likely to propose a measure but are more likely to pass a general obligation bond due to the policy change. In addition, they more than doubled their funding per

[14] The relationship between the coefficient estimates and population exist even when we exclude the city of Los Angeles and its school district, which are much larger than the other jurisdictions in the data.

resident due to the change, particularly in jurisdictions that had low .

We interpret these results in the context of a political economy model of the interaction between a voter and an elected official. With no disagreement between voters and elected officials, a lowering of the vote share would not affect the proposals made. It would however increase the probability that they prevail. However, we find an increase in both the proposals made and the probability that they prevail. This suggests that there is disagreement between the voters and the elected officials. The elected officials use some of their expanded flexibility to request more spending and part to ensure that it passes with a higher probability. Together these result in a large increase in the amount of funding approved.

There are a number of policy implications of our findings. Lowering the threshold worked as intended and more than doubled funding from GO bonds. However, the policy change did not expand the set of school districts that proposed a GO bond. In that sense, Proposition 39 likely increased funding among districts that would have proposed bonds without the change. This occurred both because districts whose proposals may have failed saw them succeed and because districts proposed larger bonds. These effects were concentrated in diverse districts, and as a result, the policy entirely closed the gap in funding between diverse districts and those with the highest share of non-hispanic white residents. However, closing the gap in capital investment should not be confused with closing any gap in the capital stock which our data do not allow us to examine.

Our findings suggest that relaxing or removing constraints on local elected leaders increase spending more in places with low spending and more diverse populations. Thus these limitations may create or exacerbate disparities in spending and removing them could reduce them. Our findings are in the context of capital and facilities expenditure which were largely not subject to school equity lawsuits and thus continue to be primarily locally funded in many states. While results may differ for other types of expenditure with larger state roles facilities themselves are important.

A growing literature investigates the effects of school construction, and capital bonds in particular. The evidence on student outcomes has been mixed. Large school construction projects may lead to improved student outcomes (Aaronson and Mazumder, 2011; Duflo, 2001; Neilson and Zimmerman, 2014). However, school capital improvement bonds, have limited effects on students outcomes but large effects on local housing prices (Cellini, Ferreira and Rothstein, 2010;

Martorell, Stange and McFarlin Jr, 2016; Conlin and Thompson, 2017; Choi, 2019). This suggests that potential homebuyers value improved facilities and they may spawn further investments. Thus, the overall effect of Proposition 39 may also have been capitalized into housing prices.

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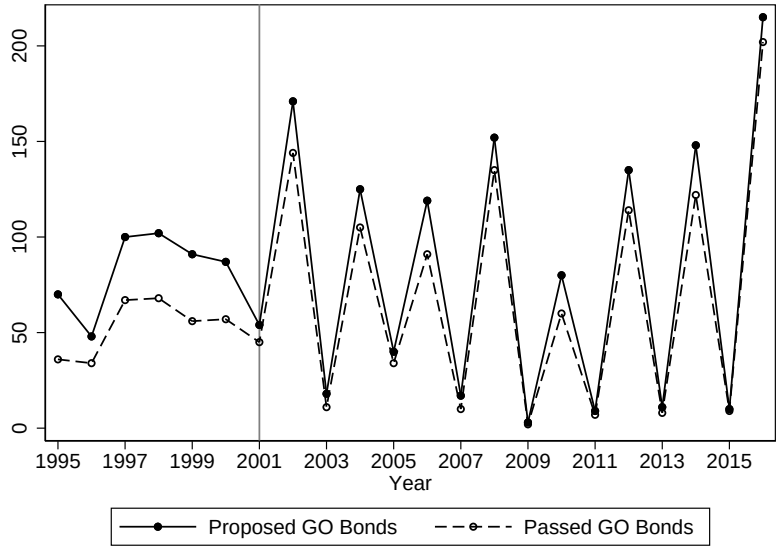
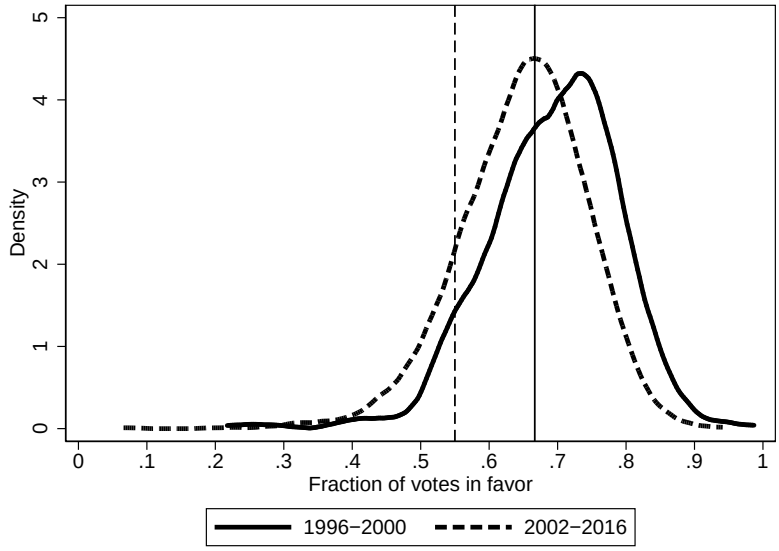
Figure 1: Number of Proposed and Passed Education GO Bonds, 1995-2016



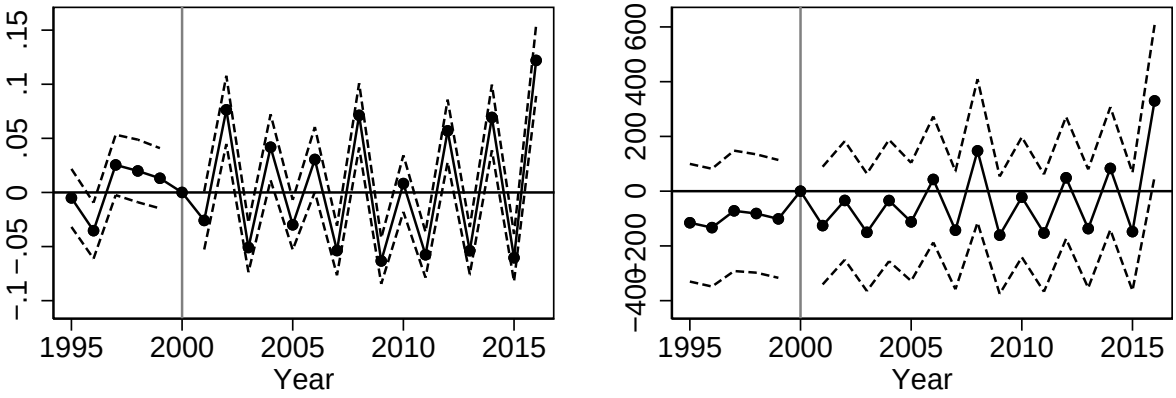
The graph shows general obligation bonds by K-12 school districts and community colleges from data described in section 3.

Figure 2: Vote Share Density Functions of Education Related Bond Elections, Before and After Policy Change



Includes general obligation bonds by K-12 school districts and community colleges. Each line represents the density function for measures in the stated year range. The solid vertical bar, at 0.67, represents the vote threshold for the measures in 1996-2000, the solid curve. The dashed vertical bar, at 0.55, represents the vote threshold for the measures after 2001 due to the passage of Proposition 39.

Figure 3: Effect on Government Bond Proposal Behavior

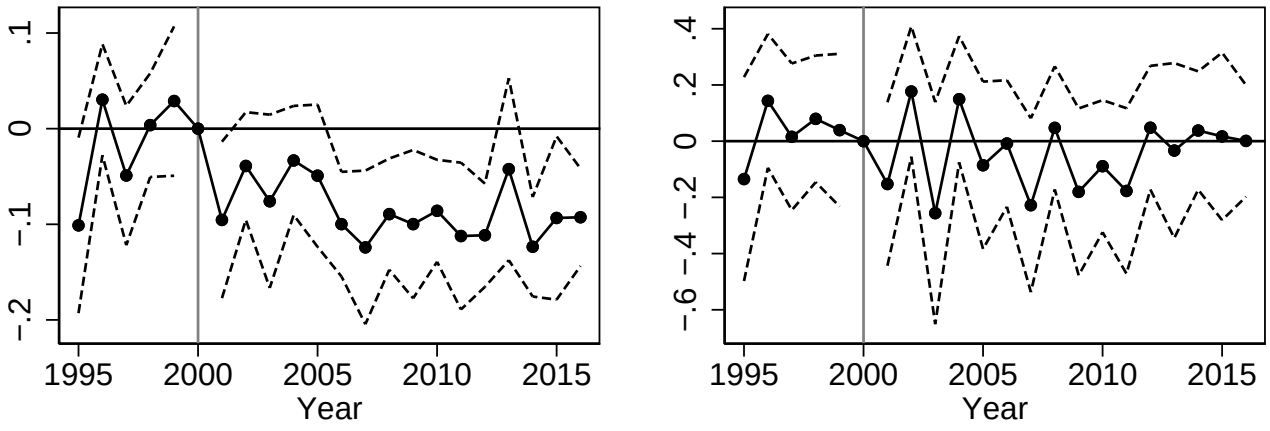


a) Proposed bond

b) Proposed $/resident

Note: Estimates of dynamic treatment effect of decreasing the vote share requirement estimated according to Equation 6 but allowing β to differ by year but constrained to zero in 2002. The outcome in panel a) is an indicator for whether the government proposed a GO bond that year. The outcome in panel b) is the dollar amount of GO bonds the government proposed that year divided by the jurisdiction's population in 2000 (zero when no bond is proposed). The dashed lines illustrate 95% confidence intervals which allow for clustering at the government level.

Figure 4: Effects on Vote Share and Pass Rates of Proposed Bonds

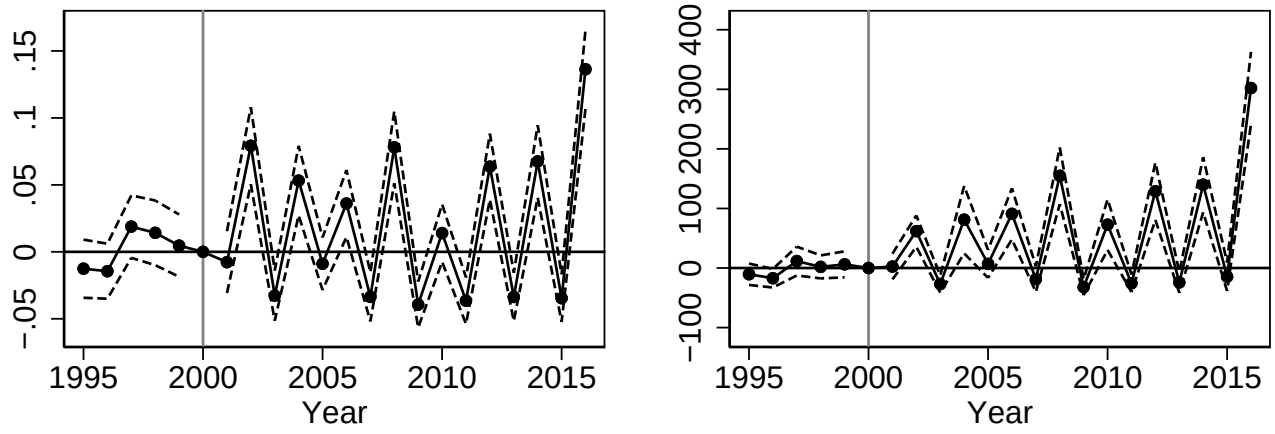


a) Vote Share

b) Pass Rate

Note: Estimates of dynamic treatment effect of decreasing the vote share requirement estimated according to Equation 7 but allowing β to differ by year but constrained to zero in 2002. The dashed lines illustrate 95% confidence intervals which allow for clustering at the government level.

Figure 5: Effect on government level outcomes

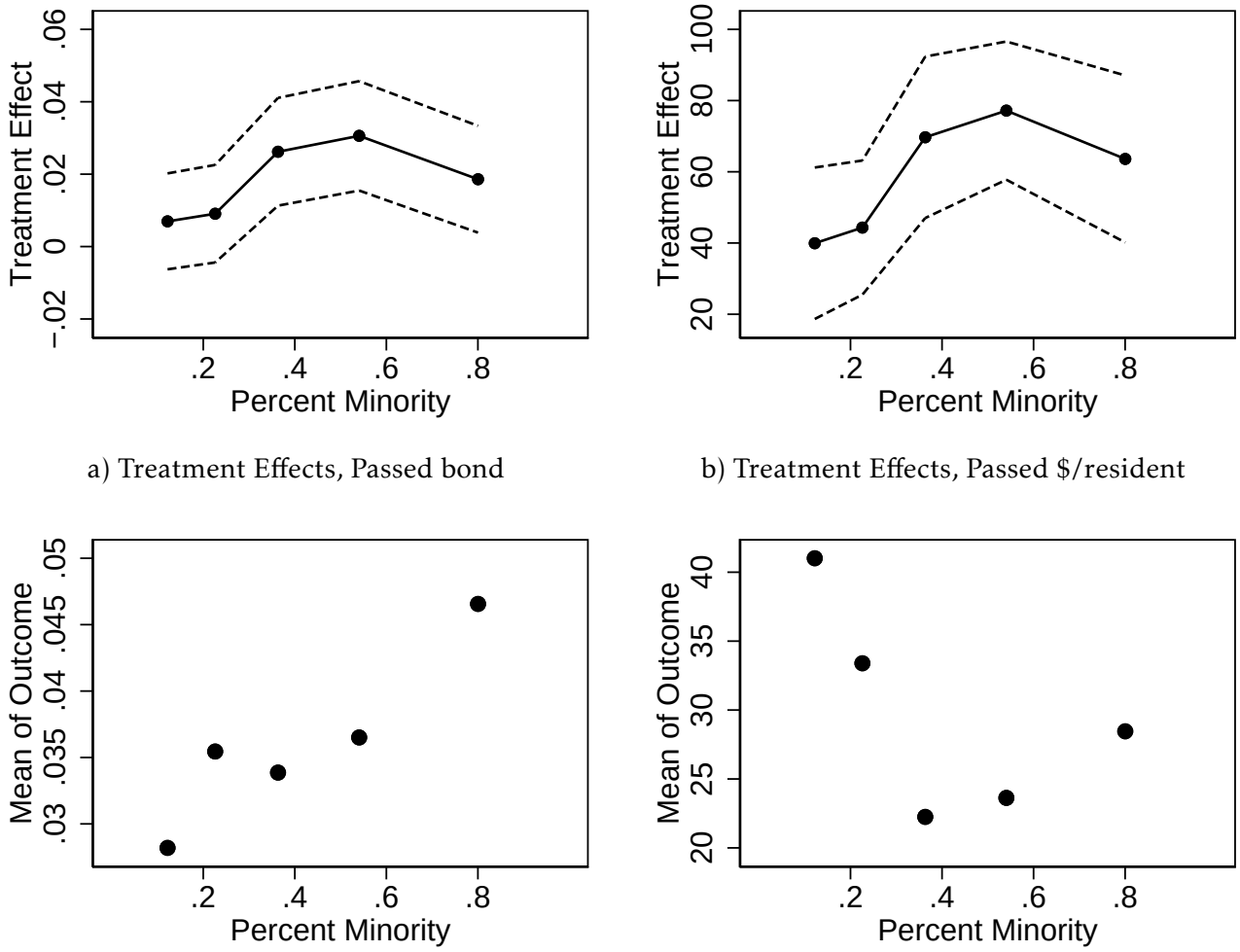


a) Bond passed

b) Approved $/Resident

Note: Estimates of dynamic treatment effect of decreasing the vote share requirement estimated according to Equation 6 but allowing β to differ by year but constrained to zero in 2002. The outcome in panel a) is an indicator for whether the government proposed *and passed* one or more GO bonds that year. The outcome in panel b) is the dollar amount of bonds proposed *and passed* divided by the jurisdiction's population in 2000 (zero when no bond passed). The dashed lines illustrate 95% confidence intervals which allow for clustering at the government level.

Figure 6: Effect of Proposition 39 on Jurisdiction-Level Outcomes by Quintile of Percent Minority



a) Treatment Effects, Passed bond

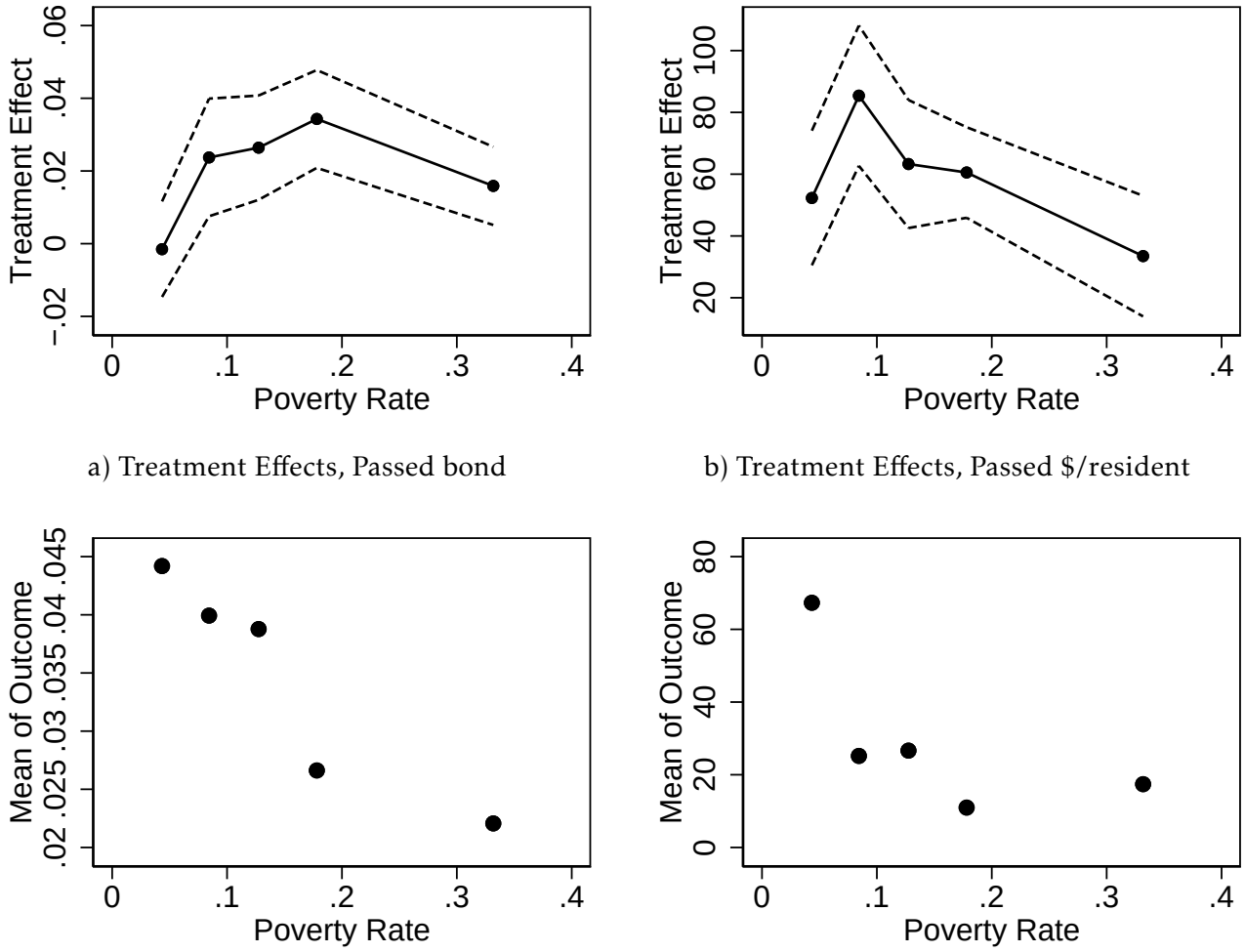
b) Treatment Effects, Passed $/resident

c) Pre-2001 Means, Passed bond

d) Pre-2001 Means, Passed $/resident

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6 but where β is allowed to differ by quintile of the percent of jurisdiction residents who are either Hispanic or non-white. The outcome in panel a) is an indicator for whether the government proposed *and passed* one or more GO bonds that year. The outcome in panel b) is the dollar amount of bonds proposed *and passed* divided by the jurisdiction's population in 2000 (zero when no bond passed). The dashed lines illustrate 95% confidence intervals which allow for clustering at the government level.

Figure 7: Effect of Proposition 39 on Jurisdiction-Level Outcomes by Quintile of Poverty Rate



a) Treatment Effects, Passed bond

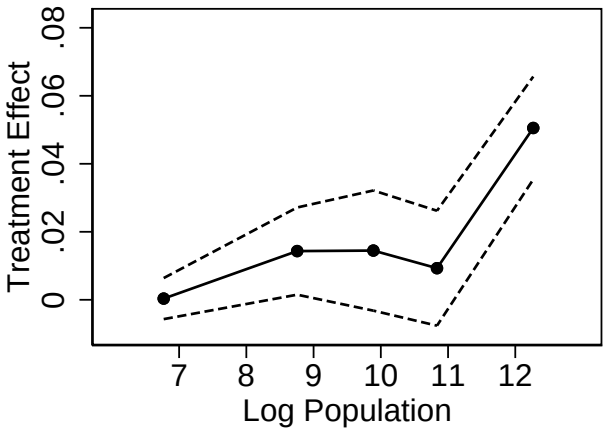
b) Treatment Effects, Passed $/resident

c) Pre-2001 Means, Passed bond

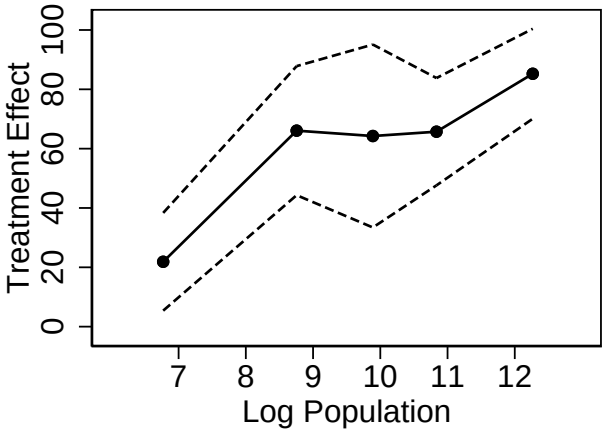
d) Pre-2001 Means, Passed $/resident

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6 but where β is allowed to differ by quintile of the percent of jurisdiction residents who are under the poverty line. The outcome in panel a) is an indicator for whether the government proposed *and passed* one or more GO bonds that year. The outcome in panel b) is the dollar amount of bonds proposed *and passed* divided by the jurisdiction's population in 2000 (zero when no bond passed). The dashed lines illustrate 95% confidence intervals which allow for clustering at the government level.

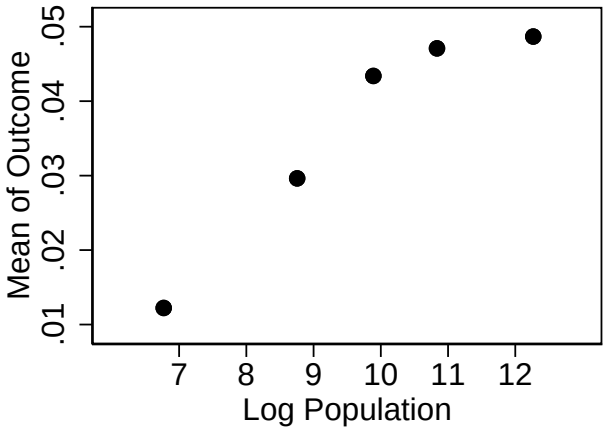
Figure 8: Effect of Proposition 39 on Jurisdiction-Level Outcomes by Quintile of Population



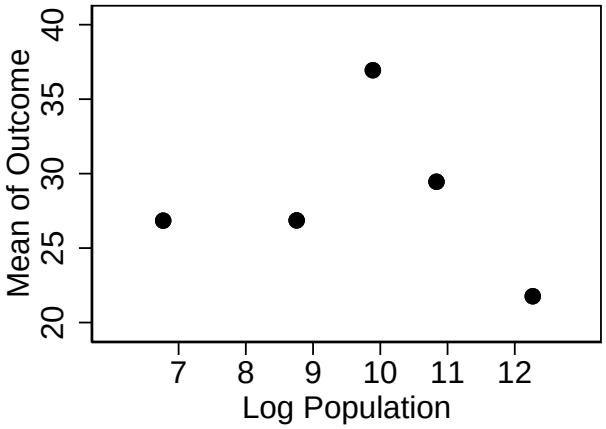
a) Treatment Effects, Passed bond



b) Treatment Effects, Passed $/resident



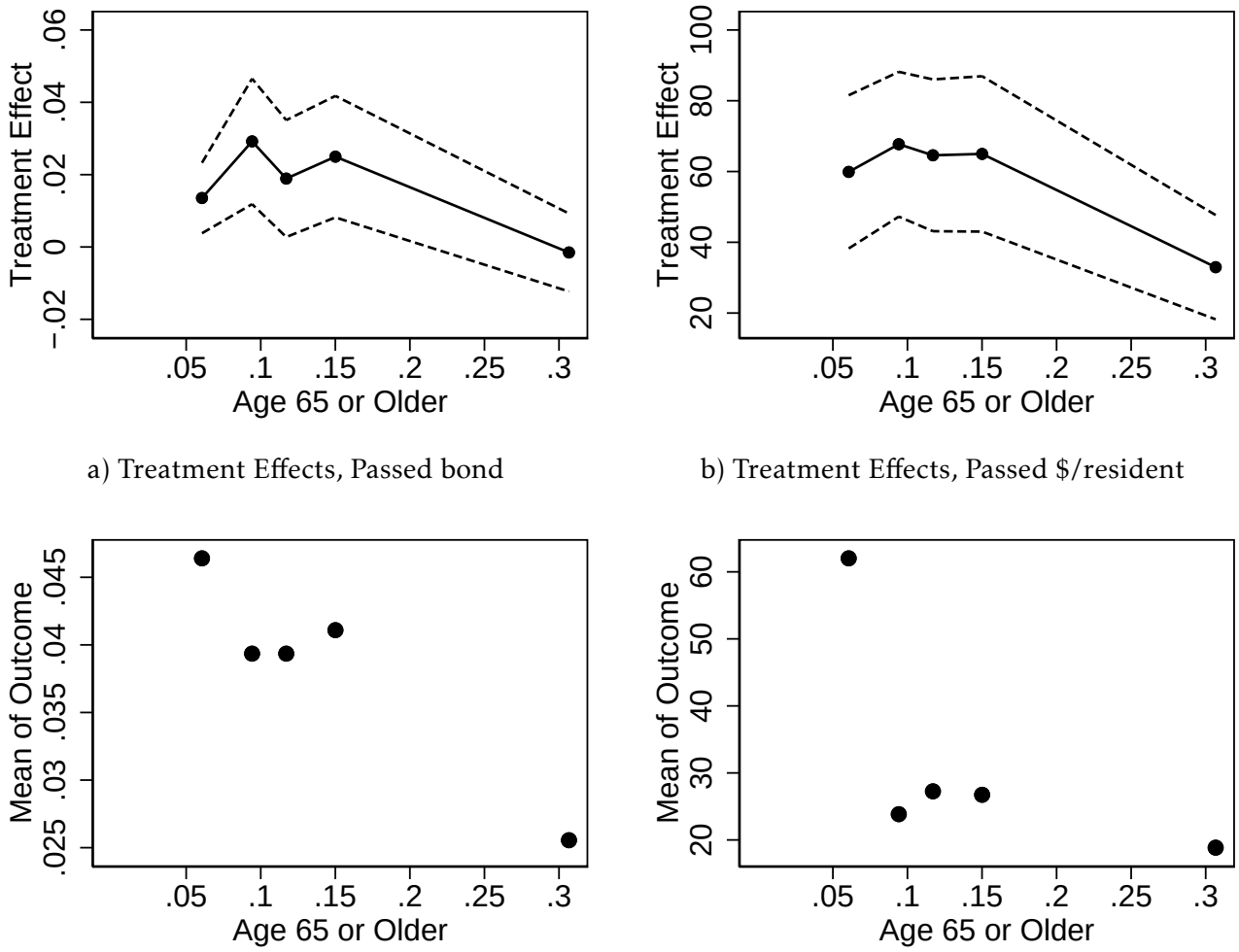
c) Pre-2001 Means, Passed bond



d) Pre-2001 Means, Passed $/resident

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6 but where β is allowed to differ by quintile of log population. The outcome in panel a) is an indicator for whether the government proposed *and passed* one or more GO bonds that year. The outcome in panel b) is the dollar amount of bonds proposed *and passed* divided by the jurisdiction's population in 2000 (zero when no bond passed). The dashed lines illustrate 95% confidence intervals which allow for clustering at the government level.

Figure 9: Effect of Proposition 39 on Jurisdiction-Level Outcomes by Quintile of Percent Age 65 or Over



a) Treatment Effects, Passed bond

b) Treatment Effects, Passed $/resident

c) Pre-2001 Means, Passed bond

d) Pre-2001 Means, Passed $/resident

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6 but where β is allowed to differ by quintile of the percent of jurisdiction residents who are age 65 or over. The outcome in panel a) is an indicator for whether the government proposed *and passed* one or more GO bonds that year. The outcome in panel b) is the dollar amount of bonds proposed *and passed* divided by the jurisdiction's population in 2000 (zero when no bond passed). The dashed lines illustrate 95% confidence intervals which allow for clustering at the government level.

Table 1: Summary Statistics

	(1) School Districts	(2) Community Colleges	(3) Cities	(4) Counties
Proposed GO Bond	0.401	0.194	0.0543	0.0517
Passed GO Bond	0.306	0.0972	0.0397	0.0172
Proposed Other Funding Election	0.0655	0	0.436	0.707
Passed Other Funding Election	0.0440	0	0.255	0.397
Proposed Bond Size ($million)	3.837	4.918	0.691	2.603
Proposed Bond Size ($ per Resident)	90.76	9.171	4.559	3.949
Passed Bond Size ($million)	2.091	1.744	0.535	1.869
Passed Bond Size ($ per Resident)	39.56	4.236	3.322	2.406
Population (1,000)	44.54	470.3	57.89	584.0
Count	977	72	479	58

Note: Data for election behavior spans 1995-2000. GO Bonds refer to general obligation bonds. Population data come from the 2000 Census. Counts of the number of residents in a community college district were constructed by overlaying their current boundaries with a map of Census tracts, and then calculating the proportional overlap.

Table 2: Effect of Proposition 39 on Jurisdiction-Level Proposal Behavior

	(1)	(2)	(3)	(4)
	Proposed Bond		Proposed $/Resident	
Post x Treat	0.00205	0.000753	48.44*	64.69***
	(0.00424)	(0.00458)	(22.21)	(17.83)
Y-Mean	0.0549	0.0547	82.27	82.28
N	34892	34826	34672	34606
R-sq	0.110	0.147	0.0732	0.122
Govt. FE	X	X	X	X
Year FE	X		X	
Year X County FE		X		X

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6. Each observation represents a government in a particular year. The outcome in columns 1 and 2 is an indicator for whether the government proposed a GO bond that year. The outcome in columns 3 and 4 is the dollar amount the government proposed that year divided by the jurisdiction's population in 2000 (zero when no bond is proposed). Standard errors allow for clustering at the government level. * $p < .05$ ** $p < .01$ *** $p < .001$

Table 3: Effect of Proposition 39 on Election-Level Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Election Vote Share			Election Approved		
Post x Treat	-0.0776***	-0.0782***	-0.0519*	-0.0346	-0.0631	0.213*
	(0.0104)	(0.0117)	(0.0251)	(0.0414)	(0.0466)	(0.0929)
Y-Mean	0.632	0.633	0.653	0.666	0.669	0.742
N	4207	3948	2040	4207	3948	2040
R-sq	0.472	0.601	0.0851	0.370	0.520	0.0810
Govt. FE	X	X		X	X	
Year FE	X		X	X		X
Year X County FE		X			X	
Govt Type FE			X			X
GO Bond Only			X			X

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 7. Each observation represents a proposed bond. The outcome in columns 1 and 2 is the vote share that the bond received. The outcome in columns 3 and 4 is whether the voters approved the bond Standard errors allow for clustering at the government level. * $p < .05$ ** $p < .01$ *** $p < .001$

Table 4: Effect of Proposition 39 on Jurisdiction-Level Funding Outcomes

	(1)	(2)	(3)	(4)
	Approved Bond		Approved $/Resident	
Post x Treat	0.0170***	0.0172***	57.56***	65.63***
	(0.00325)	(0.00361)	(4.929)	(5.406)
Y-Mean	0.0426	0.0425	53.23	53.24
N	34892	34826	34672	34606
R-sq	0.0963	0.133	0.0766	0.112
Govt. FE	X	X	X	X
Year FE	X		X	
Year X County FE		X		X

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6. Each observation represents a government in a particular year. The outcome in columns 1 and 2 is an indicator for whether the government proposed *and passed* a GO bond that year. The outcome in columns 3 and 4 is the dollar amount the government proposed *and passed* that year divided by the jurisdiction's population in 2000 (zero when no bond is passed). Standard errors allow for clustering at the government level. * $p < .05$ ** $p < .01$ *** $p < .001$

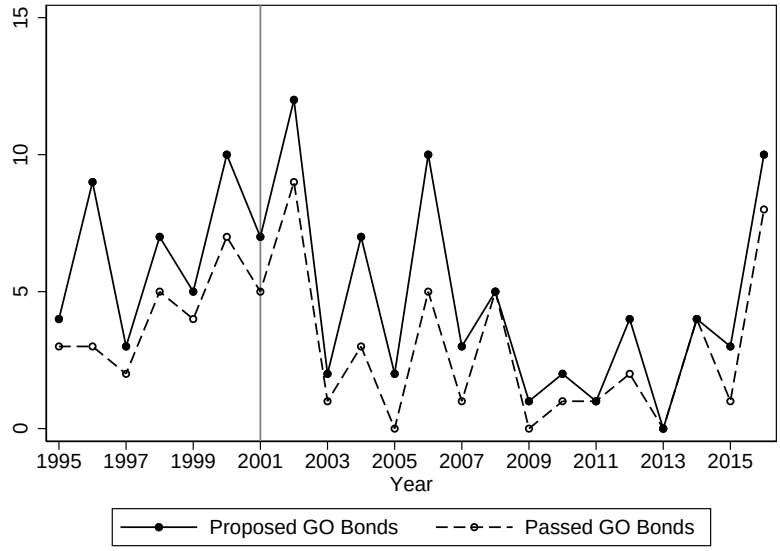
Table 5: Heterogeneity by Percent Minority in Effect of Proposition 39 on Jurisdiction-Level Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Proposed Bond		Proposed $/Res		Approved Bond		Approved $/Res	
Post x High Minority	-0.00100	0.000857	-3.337	10.96	0.00445	0.00503	1.263	-5.532
	(0.00430)	(0.00585)	(3.676)	(26.18)	(0.00303)	(0.00438)	(2.362)	(5.970)
Post x Treat x High Minority	0.0101	0.00806	15.60	-3.985	0.0133*	0.0141*	23.74*	18.31
	(0.00857)	(0.00880)	(46.79)	(48.32)	(0.00661)	(0.00681)	(9.916)	(10.85)
Post x Treat	-0.00275	-0.00336	40.82**	67.14**	0.0113*	0.0101*	46.55***	55.93***
	(0.00572)	(0.00608)	(14.37)	(21.45)	(0.00443)	(0.00473)	(6.673)	(7.431)
Y-Mean	0.0549	0.0547	82.27	82.28	0.0426	0.0425	53.23	53.24
N	34892	34826	34672	34606	34892	34826	34672	34606
R-sq	0.110	0.147	0.0732	0.122	0.0965	0.134	0.0767	0.112
Govt. FE	X	X	X	X	X	X	X	X
Year FE	X		X		X		X	
Year X County FE		X		X		X		X

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6 where β is allowed to differ according to whether the jurisdiction is above or below the median of jurisdiction's percent non-white or Hispanic. Each observation represents a government in a particular year. The outcome in columns 1 and 2 is an indicator for whether the government proposed a bond that year. The outcomes in columns 3 and 4 is the dollar amounts proposed per resident of the jurisdiction in the year 2000 (zero when no bond is proposed). The outcome in columns 5 and 6 is an indicator for whether the government proposed *and passed* a bond that year. The outcome in columns 7 and 8 is the dollar amount the government proposed *and passed* that year per resident of the jurisdiction in the year 2000 (zero when no bond is passed). Standard errors allow for clustering at the government level. * $p < .05$ ** $p < .01$ *** $p < .001$

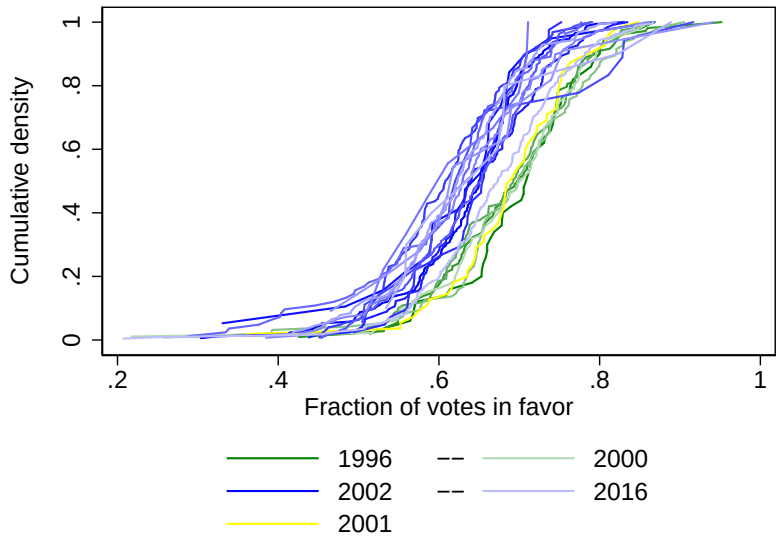
A1 Appendix Figures & Tables

Figure A1: Number of Proposed and Passed Non-Education GO Bonds, 1995-2016



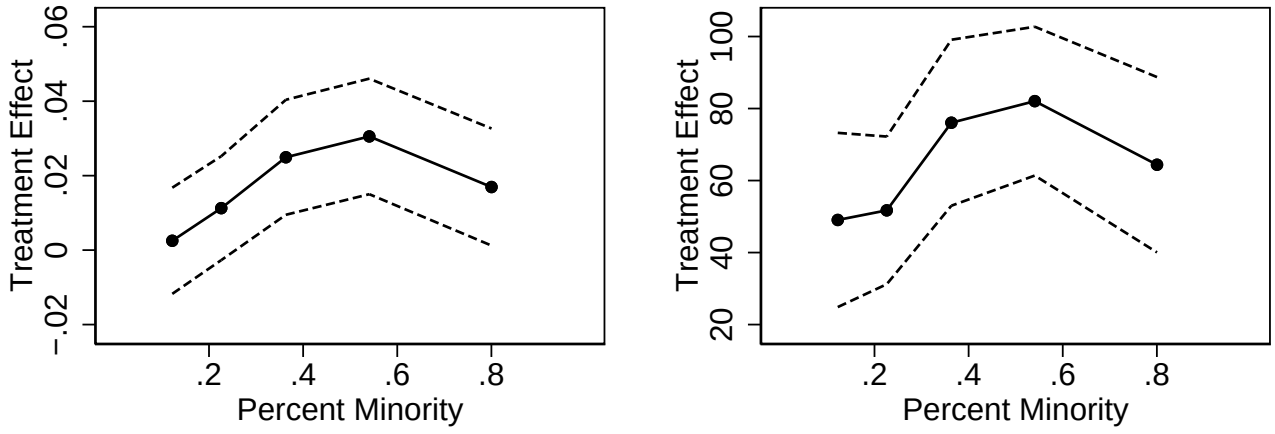
The graph shows general obligation bonds by counties and municipalities from data described in section 3.

Figure A2: Cumulative Density Functions of Vote Shares for Education GO Bonds, by Year, 1995-2016



Includes general obligation bonds by K-12 school districts and community colleges. Each line represents the cumulative density function for measures in the stated year.

Figure A3: Effect of Proposition 39 on Jurisdiction-Level Outcomes by Quintile of Percent Minority, with County by Year Fixed Effects

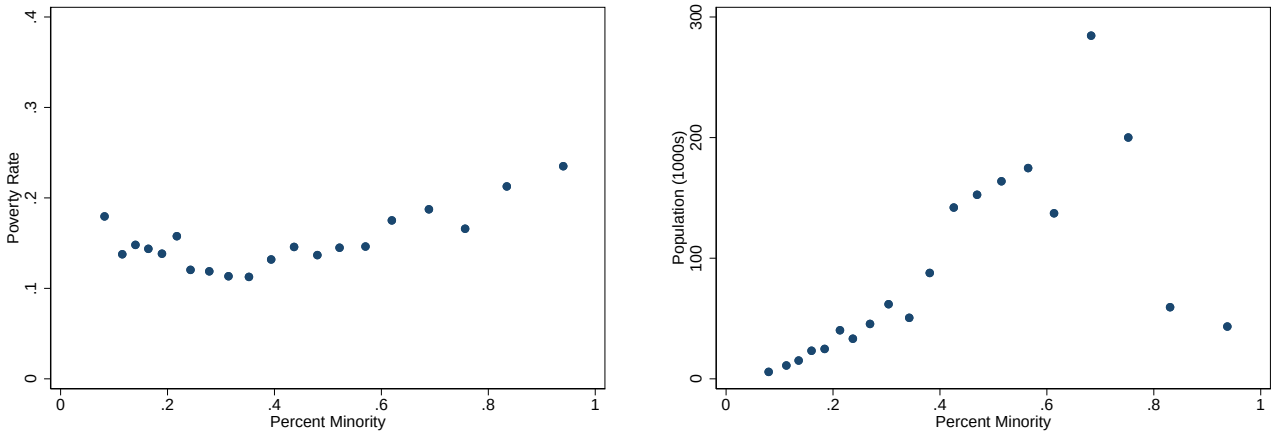


a) Passed bond

b) Passed $/resident

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6 but where β is allowed to differ by quintile of the percent of jurisdiction residents who are either Hispanic or non-white. The outcome in panel a) is an indicator for whether the government proposed one or more GO bonds that year. The outcome in panel b) is the dollar amount of bonds proposed divided by the jurisdiction's population in 2000 (zero when no bond passed). The dashed lines illustrate 95% confidence intervals which allow for clustering at the government level.

Figure A4: Correlation Between Jurisdiction Non-White Share, Poverty Rate, and Population



a) Poverty Rate

b) Population

Note: These figures show jurisdiction-level poverty rate in 2000 from the US Census on the vertical axis, and the share of a jurisdiction's population that is non-White on the horizontal axis.

Table A1: Effect of Proposition 39 on Jurisdiction-Level and Election-Level Outcomes, Excluding Community Colleges

	(1)	(2)	(3)	(4)	(5)	(6)
	Proposed Bond	Proposed $/Res	Vote Share	Approved	Approved Bond	Approved $/Res
Post x Treat	-0.00372	46.38	-0.0778***	-0.0428	-0.0178**	56.87***
	(0.00434)	(23.84)	(0.0123)	(0.0489)	(0.00587)	(5.235)
Y-Mean	0.0530	83.05	0.630	0.669	0.0799	53.25
N	33308	33088	4344	4344	33308	33088
R-sq	0.110	0.0730	0.508	0.402	0.130	0.0756
Year FE	X	X	X	X	X	X
Govt. FE	X	X			X	X
County FE			X	X		
Unit of Obs.	Juris	Juris	Election	Election	Juris	Juris

Note: Estimates of the effect of decreasing the vote share requirement. Columns 1 and 2 correspond to estimates in Table 2, columns 3 and 4 to Table 3 and 5 and 6 to Table 4. Standard errors allow for clustering at the government level. * $p < .05$ ** $p < .01$ *** $p < .001$

Table A2: Effect of Proposition 39 on the Size of Proposed Bonds

	(1)	(2)	(3)	(4)
	$/resident		log($/resident)	
Post x Treat	0.456*	0.326*	-0.423	-0.473
	(0.181)	(0.156)	(0.272)	(0.460)
Y-Mean	1.397	1.249	6.676	6.662
N	1996	1446	1992	1441
R-sq	0.934	0.741	0.750	0.799
Govt. FE	X	X	X	X
Year FE	X		X	
Year X County FE		X		X

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 7. Each observation represents a proposed bond. The outcome in columns 1 and 2 is the proposed dollars of bonding per resident. The outcome in columns 3 and 4 is the log of the proposed dollars of bonding per resident. Standard errors allow for clustering at the government level. * $p < .05$ ** $p < .01$ *** $p < .001$

Table A3: Effect of Proposition 39 on the Logged Size of Proposed and Passed Bonding

	(1)	(2)	(3)	(4)
	log(Proposed \$/Resident+1)		log(Passed \$/Resident+1)	
Post x Treat	0.0520	0.0539	0.146***	0.154***
	(0.0273)	(0.0297)	(0.0210)	(0.0236)
Y-Mean	0.372	0.371	0.287	0.287
N	34672	34606	34672	34606
R-sq	0.109	0.146	0.0964	0.134
Govt. FE	X	X	X	X
Year FE	X		X	
Year X County FE		X		X

Note: Estimates of the effect of decreasing the vote share requirement estimated according to Equation 6. Each observation represents a government in a particular year. The outcome in columns 1 and 2 is the log of one plus the dollar amount the government proposed that year divided by the jurisdiction's population in 2000 (zero when no bond is proposed). The outcome in columns 3 and 4 is the log of one plus the dollar amount the government passed that year divided by the jurisdiction's population in 2000 (zero when no bond is proposed). Standard errors allow for clustering at the government level. * $p < .05$ ** $p < .01$ *** $p < .001$