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POLICY BRIEF

# Effects of Local Population Turnover on Texas School Bonds and Local Communities

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## Executive Summary

One of the primary functions of local school districts is to provide a sound educational environment to students. To achieve this goal, school districts continue to maintain and improve existing facilities and construct new buildings. School districts must go through bond elections to receive voter approval before issuing bonds to support the project. TEC § 45.003 stipulates that bonds or taxes to support bonds may not be issued or levied unless authorized by a majority of the qualified voters of the district. Between 1992 and 2021, there were 3,491 school bond elections, with approximately 25% being defeated. Given that access to local funding depends on residents and school districts always run the risk of failing to raise additional debt, voters in the district play a crucial role in providing sufficient capital to improve educational infrastructure.

However, returns from investments in infrastructure tend to be long-term, while an increased tax burden to cover the debt can be immediate. Because of the mismatch in the timing of receiving benefits and paying the associated costs, a community with a higher population turnover may exhibit different voting patterns than one with a lower turnover. For example, voters who do not plan to move may have incentives to vote depending on the potential net benefits of the project. In contrast, voters who are likely to leave the district may vote against the proposal regardless of the project's long-term benefits if they anticipate a tax increase while they stay.



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Population turnover can significantly impact various dimensions, especially through the outcomes of bond elections. For instance, students in overcrowded schools benefit from the establishment of new schools if residents in low-turnover communities recognize the long-term advantages. Test scores may improve in the short run, along with labor market outcomes in the long run. School districts may exhibit different financing behaviors depending on the degree of turnover among the residents. Even if they propose a timely and financially sound bond proposal to help students in their districts, it may not receive sufficient votes to be realized if residents only consider the associated tax burden. Hence, school bond boards and bond counsel may have to reduce the proposed amount.

**Research Questions:**

In this project, we attempted to address the following research questions:

Q1: How does population turnover affect school bond election outcomes?

Q2: What are the effects of population turnover on short-term and long-term student educational outcomes?

Q3: Does population turnover affect school district financing (e.g., issue amount, yield at issue, leverage ratio, % state funding)?

## How We Analyzed the Data

To test the above hypotheses, we employed the instrument variable estimation to establish causal relationships. Since our main independent variable of interest, population turnover is likely to be confounded by other underlying local economic factors, the instrument can help mitigate the bias that comes from omitted variables in the regression. Hence, we used the proximity of school districts to the university as our instrument for population turnover. Intuitively, the instrument influences the outcome variables only through the variation in population turnover, removing the effects of confounding factors such as local economic conditions.

For an IV to be valid, it must satisfy two conditions: relevance and exclusion. The relevance condition is met when the IV is correlated with the endogenous independent variable, population turnover. We argue that the proximity of school districts to the university satisfies the relevance condition, as university students frequently enter and graduate.

On the other hand, the exclusion condition is met when the IV only affects the outcome variable through the endogenous independent variable. In our research setting, we were mostly concerned that the greater distance between the university and the school district may imply that the district is in a rural area where economic conditions are different from those of the urban region.

However, we believed that our setting alleviated such concerns. In our case, any two neighboring school districts are likely to share similar economic conditions except for the distance from the nearby university. We use the geographic distance between the school district headquarters and the nearest four-year colleges to instrument population turnover, which is measured by the ratio between the minimum of in-migration and out-migration and the total population at the district level. One way to measure is to use how many students in K-12 schools moved to or out of the district in year t, which is available in the Texas ERC datasets. The regression also includes a potential set of variables that control lagged time-varying district-level characteristics. Any unobservable heterogeneity at the school district and time level is accounted for by district and year-fixed effects.

**What We Discovered**

To our disappointment, we were unable to provide satisfactory answers to the proposed hypotheses for a couple of reasons.

We found that the bond election outcomes were not strongly correlated with our measure of population turnover. This result weakens the proposed empirical framework as it is the main mechanism through which population turnover influences the welfare of school districts. Even if we find statistically significant results on the ensuing hypotheses, it would be difficult to claim that the effects occur through local demographic characteristics. This result may not come as a surprise since less than 20% of proposed bond measures were turned down until 2007. In addition, high pass rates can arise if school districts can test the water before they go to bond elections, which are unobservable to econometricians. For example, superintendents may withdraw their bond proposals if they expect a strong objection from locals after public hearings.

Without sufficient variation in voting outcomes, especially before 2007 since we were interested in long-run outcomes, we have concluded that our results do not have sufficient statistical power to tell whether population turnover affects various student outcomes by influencing school district bond election outcomes.

While we attempted to mitigate endogeneity concerns using geographical variation in the distance to post-secondary institutions as an instrument, the instrument can still be correlated with local economic conditions. In other words, the location of colleges may not be randomly assigned. It is reasonable to assume that colleges strategically locate themselves so that they can ensure stable inflows of students. To

the extent that this conjecture means populous and fast-growing cities, it threatens the causal interpretation of our results. To our dismay, we were not able to find an alternative instrument for population turnover that can be free of the identification concerns with the current instrument.

## Policy Recommendations / Conclusions

Although it is discouraging to discover that the proposed empirical analysis did not provide satisfactory answers to the research questions, we believe that any future proposals can delve into other dimensions of demographic factors that may drive the variation in voting outcomes. Our measure of population turnover only captures one of the many dimensions that can contribute to the success of school district bond elections. Beyond the demographic shifts, there may exist other forces such as changes in political and economic circumstances that influence the dynamics of voting outcomes.

Whether and how capital expenditures shape educational outcomes remains one of the most important questions in Economics. Not only does this question shed light on the efficiency of additional dollars spent on physical infrastructure, but it ultimately touches upon how we can improve human capital formation throughout the individual's life. We sincerely hope that a series of legislative actions such as the property tax relief in 2019 offer an ideal natural experiment to test the hypothesis in this project.