Ranking Up by Moving Out:

The Effect of the Texas Top 10% Plan on Property Values

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Abstract

Texas engaged in a large-scale policy experiment when it instituted the Top 10% Plan. This policy guarantees automatic admission to their state university of choice for all high school seniors who graduate in the top decile of their high school class. We find evidence that households reacted strategically to this policy by moving to neighborhoods with lower-performing schools, increasing both property values and the number of housing units in those areas. These effects are concentrated among schools that were very low-performing before the change in policy; property values and the number of housing units did not change discontinuously for previously high-performing school districts. We also find evidence that these strategic reactions were influenced by the number of local schooling options available: areas that had fewer school choices showed no reaction to the Top 10% Plan.

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1. Introduction

Texas engaged in an unforeseen large-scale experiment when it replaced the use of affirmative action policies in its college admissions with the Top 10% Plan admissions policy. The Top 10% Plan guarantees admission into any of Texas' public universities to all high school seniors who finish within the top decile of their graduating class. This includes the most selective state universities: The University of Texas at Austin and Texas A&M at College Station. For school districts that had poor acceptance rates to postsecondary institutions this admissions policy suddenly provided a valuable local amenity: improved access.

In this study, we analyze the effect of the Top 10% Plan on property values. More specifically, we analyze whether the change in admissions policies led to an increase of the value of residential homes in school districts with low-performing high schools relative to school districts with higher-performing high schools. School districts with low-performing high schools are expected to be the areas where property values are most responsive to the policy change because it is at these schools where *access* to selective public colleges was improved the most. We expect to find little reaction to the Top 10% Plan in areas with high-quality schools. Because these high schools already place far more than their top 10% of graduates in highly ranked postsecondary institutions, the Top 10% Plan would do little to increase access.

Using a difference-in-differences methodology, we find that, as a consequence of the change in admissions policy, residential property values in the areas served by schools in the bottom quintile of school quality grew more rapidly relative to areas served by schools in the 2^{nd} quintile (second from the bottom). We also compare the 4^{th} quintile with the top quintile and find that the growth in home values did not occur in the top end of the school quality distribution. Moreover, we find that this relative growth in property values found in the bottom quintile of school quality is a result of both a bidding up of home prices in the existing housing stock and an increase in the number of housing units available (likely through construction). We do this by also analyzing the quantity of housing.

Furthermore, we observe that changes in property values are sensitive to the number of schooling options locally available. If a household is going to react strategically to the Top 10% Plan by moving, then moves would be easier in areas with a large number of local schooling options (e.g., a shorter distance to find a new school would not require finding a new job). Specifically, counties with a relatively high Herfindahl-Hirschman Index (HHI) for schooling would show little to no reaction to the change in policy, whereas counties with a relatively low HHI for schooling would show the greatest reaction to the policy change. This is precisely the case: we find that the disproportionate growth of property values in the bottom quintile of school quality relative to the 2nd quintile did not occur in counties that were more monopolistic, but did occur in counties that were more competitive.

Lastly, our analysis estimates that the Top 10% Plan had a rate of return of 4.9 percent in relative average property value gains of the lowest quintile of school quality compared to the 2nd quintile of school quality. As property values vary greatly from district to district before the policy shift and property tax rates also vary greatly it is easy to see how the Top 10% Plan had a powerful impact not only on admissions decisions, but also on school finance and local taxation decisions.

The paper is organized as follows: Section 2 presents background on the Top 10% Plan and a literature review; Section 3 presents a conceptual model of sorting and bidding; Section 4 outlines the various empirical strategies used in the paper; Section 5 describes the data used in the analysis and sample characteristics; Section 6 reports and discusses our results; and Section 7 concludes.

2. Background of the Top 10% Plan and Literature Review

2.1 The Top 10% Plan

The 5th Circuit Court's decision in Hopwood v. University of Texas Law School judicially banned the use of race as a criterion in admissions decisions in all public postsecondary institutions in Texas.[1] The end of affirmative action admissions policies was overwhelmingly felt, especially at the two most selective public institutions, The University of Texas at Austin and Texas A&M University at College Station, where the number of minority enrollees plummeted (Tienda et al. 2003; Bucks 2004; Walker and Lavergne 2001). In response to this ruling, Texas passed the H.B.588 Law on May 20, 1997–more commonly known as the Top 10% Plan. The Top 10% Plan guarantees automatic admission to any public university of choice to all seniors who graduate in the top decile of their graduating high school class.[2,3] This is similar to other states' percent plans (e.g., California, Florida, and Washington), but is unique in the sense that it gives students the choice of which public institution they would like to attend rather than assigning the institution outright.[4]

Proponents of the plan believed that it would restore campus diversity because of the high degree of segregation among high schools in Texas. Their logic was that the number of minority students who would be rank-eligible under the Top 10% Plan would be sufficient to restore campus diversity throughout the state. Even though the goal of the Top 10% Plan was to improve access for disadvantaged and minority students, the use of a school-specific standard to determine eligibility may have led to some unintended effects if households responded strategically. In a recent study,

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[1] See *Hopwood v. University of Texas Law School* 78 F.3d 932, 944 (5th Cir. 1996).

[2] In 2009, Texas placed some limits on student choice: the University of Texas at Austin is now allowed to cut off the proportion of Top 10% Plan students in a given freshman class at 75 percent.

[3] Although private universities are duty-bound by the *Hopwood* ruling, they are not subject to the automatic admissions guarantee (Tienda et al. 2003).

[4] For instance, students in California eligible for admission to the University of California system are determined on a statewide basis using a standardized criterion, and the allocation of students to specific campuses is a system wide decision. The top 4% of local schools not included in the statewide admissions are also assigned a University of California institution. Similarly, the *Talented 20 Plan* in Florida guarantees the top 20% of public high school graduates admission to a college, but students are assigned an institution.

Cullen, Long, and Reback (2009) find that students increased their chances of being in the top 10% by choosing a high school with lower-achieving peers. They analyze student mobility patterns between the 8^{th} and 10^{th} grades before and after the policy change, and conclude that the change in admissions policies in Texas did indeed influence the high school choices of students. This goes a long way towards explaining the changes in enrollment probabilities for minority and non-minority students found in Tienda et al. (2003), Bucks (2003), Walker and Lavergne (2001), Niu et al. (2006), and Cortes (2010).

If households are moving strategically between school districts then their valuation of those school districts must have changed due to the policy. Our analysis pushes this idea further by looking for evidence of this change through households' maximum willingness to pay for housing services. This is reflected in changes in property values in school districts whose desirability changed when the Top 10% Plan was implemented.

2.2 Related Literature

The Top 10% Plan changed how much certain households are willing to pay for school district quality through their housing prices. This sort of reaction is best illustrated with bidding and sorting models, which are a part of the local public finance literature. This branch of the literature is widely seen as starting with Tiebout (1956) who put forth the idea that households shop for property tax and public service packages through their choice of location, and compete for entry into communities with more desirable packages by bidding on housing. This forms the cornerstone of bidding and sorting models in which different income and taste classes of households sort themselves based on their maximum willingness to pay for a quality adjusted unit of housing in communities with different tax and service packages.[5] Ross and Yinger (1999) provide a discussion of this class of model as well as a review of the capitalization literature that analyzes how differing property tax or public service levels are reflected in housing prices.

The part of this literature that is germane to our analysis deals with estimating the capitalization of school district characteristics. The main empirical hurdle with these studies is disentangling the capitalization of school district characteristics from the capitalization of neighborhood characteristics and taxes because these attributes are also spatially linked. A popular solution to this empirical hurdle is to use school districts that have more than one school in them and identify capitalization effects using variation across boundaries inside of the school district. Variations on this strategy have been used by Bogart and Cromwell (1997), Black (1999), as well as Weimer and Wolkoff (2001).

Another possibility is to use panel data and difference out the undesired effects; this allows analysis of the capitalization of school district characteristics that vary over time. Barrow and Rouse (2004) use school district fixed effects to see how differences in state aid to schools are capitalized into property values. Their identification strategy is similar to Clapp, Nanda and Ross (2008) who use census tract fixed effects to study the capitalization of differences in state standardized test scores and school district demographics over time. Also, a study by Figlio and Lucas (2004) uses repeat sales data, which allows for property level fixed effects, to look at the effect of school report card grades on property values.

Our identification strategy is closer to the second set of papers: we tackle neighborhood and tax effects by differencing over time as part of our difference-in-differences estimator. However, our analysis is different in that we are not interested in the level of public service capitalization into

[5] Households sort along income for both property taxes and public services, but they only sort along preferences for public services. This is because regardless of tastes any household is willing to pay a maximum of one dollar to avoid one dollar of taxes.

property values as much as we are interested in how property values change in response to a policy shift. There are not a lot of studies that take such an approach, the only paper that we are aware of is by Reback (2005), who analyzes how property values respond to the introduction of a school choice program in Minnesota.

3. Theoretical Framework: The Effect of the Top 10% Plan on Property Values

This section presents the conceptual model that sheds light on our identification strategy. Our hypothesis is that after the implementation of the Top 10% Plan property values will increase in lower-quality school districts relative to higher-quality school districts. To explain why we expect this to be the case we will briefly introduce a model of bidding and sorting. Following Ross and Yinger (1999), we make the following assumptions:[6]

(A.1) Household utility depends on consumption of housing, public services (in our case school district quality), and a composite good. Furthermore we will assume that the households utility function takes on a Cobb-Douglas functional form, this will make the specific effect of the Top 10% Plan easier to see algebraically.

(A.2) Every household falls into a distinct income and taste class of which there are a finite number.

(A.3) Households are perfectly mobile homeowners.

(A.4) All households in the same school district receive the same level of school district quality, and the only way to gain access to a school district is to reside within its borders.

[6] For a complete treatment of this class of models as well as a review of the relevant bidding and sorting literature refer to Ross and Yinger (1999).

(A.5) There are many school districts with varying levels of quality that finance themselves through a local property tax.[7]

We will use the following notation: S is the level of local public services (school district quality), H is housing, measured in quality adjusted units of housing services with a price of P per unit. Z is the composite good, with a price normalized to one. The effective property tax rate is t, the total tax payment is T, which equals t times V, and the value of a property is given by $V = \frac{PH}{r}$, where r is the discount rate. T can be simplified by noticing that $T = t \cdot V = \frac{t}{r} \cdot PH = \tilde{t} \cdot PH$. This yields a household budget constraint of: $Y = Z + PH \cdot \left(1 + \tilde{t}\right)$.

To capture competition for entry into desirable communities, the household utility maximization can be viewed as a bidding problem: How much is a household willing to bid for a unit of housing in a more desirable community? This is shown by rearranging the budget constraint to solve for a household's maximum bid:

$$\underset{\{H,Z\}}{Max} \quad P = \frac{Y - Z}{H \cdot \left(1 + \tilde{t}\right)} \tag{1}$$

$$\textit{Subject to} \;\; U\left(Z, H; S\right) = U^0\left(Y\right)$$

Setting up the Lagrange function, the household's optimization problem becomes the following:

$$\underset{\{H,Z\}}{Max} \quad \mathrm{L} = \frac{Y - Z}{H \cdot \left(1 + \tilde{t}\right)} + \lambda \cdot \left\{ U\left(Z, H; S\right) - U^0\left(Y\right) \right\} \tag{2}$$

The household's maximization problem has the following first order conditions for an interior solution:

[7] An alternate to this assumption is to assume a proportional tax on housing services consumed. This is essentially a property tax, but does allow for the possibility of renters, allowing (A.3) to be slightly relaxed. An implementation of this assumption can be found in Epple, Filimon, and Romer (1993).

$$\frac{\partial L}{\partial H}: -\frac{Y-Z}{H^2 \cdot (1+\tilde{t})} + \lambda \cdot U_H = 0 \tag{3}$$

$$\frac{\partial L}{\partial Z}: -\frac{1}{H \cdot (1+\tilde{t})} + \lambda \cdot U_Z = 0 \tag{4}$$

These results allow us to solve for the Lagrange multiplier, which will be needed later to get comparative statics via the envelope theorem. There are two possible solutions for the Lagrange multiplier. Using the first order condition with respect to housing, H, the solution is:

$$\lambda = \frac{Y-Z}{H^2 \cdot (1+\tilde{t}) \cdot U_H} \tag{5}$$

And using the first order condition with respect to the composite good, Z, the solution is:

$$\lambda = \frac{1}{H \cdot (1+\tilde{t}) \cdot U_Z} \tag{6}$$

These are both apt expressions for the Lagrange multiplier, λ, however, the second expression lends itself to ease of interpretation in the next step. If we recognize that school district quality, S, is a parameter in this setup, then we can solve for the impact of S on the bid P by applying the envelope theorem to equation (1):

$$P_S = \lambda \cdot U_S \tag{7}$$

We can then substitute in equation (6) for λ to get,

$$P_S = {U_S}/{U_Z} \cdot \frac{1}{H^* \cdot (1+\tilde{t})} = \frac{MB}{H^* \cdot (1+\tilde{t})} \tag{8}$$

This is greatly simplified by our use of the second expression for λ, since U_S / U_Z is the marginal benefit of a unit of S (as the price of a unit of Z has been normalized to one). P_S is an expression for the slope of a bid-function (i.e., maximum willingness to pay for a quality adjusted unit of housing) with respect to S for an arbitrary income and taste class. If we notice that the value of this slope will be different for different income and taste classes then we can display a group of bid-functions as shown in Figure 1.

Hence, B1, B2, and B3 represent bid-functions for three different income and taste classes. Since housing is purchased by the highest bidder, the market bid-function is the upper envelope of the bid-functions of all income and taste classes. To look at the theoretical impact of the Top 10% Plan, consider a Cobb-Douglas utility function:

$$U(Z,H;S) = \alpha \cdot \ln(S) + \beta \cdot \ln(Z) + (1-\alpha-\beta)\cdot \ln(H) \qquad 0 < \alpha, \beta < 1, \alpha + \beta < 1 \qquad (9)$$

The Top 10% Plan makes school district quality less valuable to a specific income and taste class, namely households whose children would now benefit from having peers who perform more poorly. This can be viewed as a decrease in the parameter α, which captures the household's taste for school district quality. Hence, we can find the effect of the Top 10% Plan on housing prices of a change in the parameter α by substituting equation (9) into equation (1) and then applying the envelope theorem:

$$P_\alpha = \lambda \cdot \left[\ln(S) - \ln(H^*)\right] = \frac{\ln(S) - \ln(H^*)}{H^* \cdot (1+\tilde{t}) \cdot U_Z} \qquad (10)$$

Equation (10) is positive if S > H, negative if S < H, and zero when the two are equivalent. Suppose B2 is the bid-function for the income and taste class that will be affected by the Top 10%

Plan, then as shown in Figure 2, B2' is the income and taste class bid function after the Top 10% Plan is enacted.

Since S and P are both in per quality adjusted unit of housing terms, there exists some S^* such that there is one unit of school district quality per unit of housing. For school districts with higher quality than S^* the affected income and taste class will have a smaller bid after the policy is enacted, and for school districts with lower quality than S^* the affected income and taste class will have a larger bid after the policy is enacted. If we compare the upper envelope of B1, B2, and B3 with the upper envelope of B1, B2', and B3 the impact of the Top 10% Plan is clear. The two wedges to either side of S^* show the potential distortion in housing prices caused by the policy change. It should be noted that the part of the B2' bid function that is mapped to S^* will not necessarily be part of the market bid-function envelope. This means that the part of the post-policy market bid-function that comes from the affected income and taste class could be either greater or less than it was prior to the policy change. That is, housing prices will solely increase on the affected portion of the bid-function if S^* is to the right of or equal to the point where B2' and B3 intersect, whereas housing prices will solely decrease on the affected portion if S^* is to the left of or equal to the point where B2' and B1 intersect. Which case prevails does not change the qualitative result of the policy change. The Top 10% Plan makes school districts of lower quality than S^* increase in value relative to those school districts of higher quality than S^*. Whether the relative gain is because of an increase in value for low-quality school districts, a decrease in value for high-quality school districts, or some amalgam of the two is uncertain.

Realistically the Top 10% Plan will influence multiple household types all at the same time. This can be visualized as an overall flattening of the distribution of bid functions. Households that have more to gain by improved access will just flatten their bid functions to a larger extent. Though there is some uncertainty as to the specific mechanism by which the property values change, evidence presented by Cullen, Long, and Reback (2009) points towards changes in property values being driven by households making strategic moves between school districts. However, it is also possible that the relative change in property values is driven by households that change their willingness to pay for housing in their *current* district. These households could change residence without leaving the district and have their new willingness to pay capitalized into their property's value.

4. Empirical Strategies and Model Specification

4.1 Difference-in-Differences Analysis

We use a difference-in-differences analytic approach to study the effect of the Top 10% Plan on property values. We compare changes in home values before and after the Top 10% Plan was enacted by differencing property values in the pre-policy period (the 1994-95 school year through the 1996-97 school year) from property values in the post-policy period (the 1997-98 school year through the 2005-06 school year). This removes any effects that are constant between the pre and post-periods such as omitted neighborhood effects. The second difference is between the 1st and 2nd quintiles of school quality. This should yield the net effect of the Top 10% Plan on home values in the 1st quintile relative to the 2nd quintile. Our identification strategy hinges on the assumption that there were no other exogenous factors that could have caused these differences in this time frame.

Several models of the following form are estimated by ordinary least squares (OLS) with interest on the parameter δ, the difference-in-differences estimator,

$$\ln\left(Y\right)_{jt} = \alpha + \gamma \cdot Post_t + \beta \cdot Treatment_i + \delta \cdot Post_t \cdot Treatment_i + \tau \cdot Ltrend_t$$

$$+X_{it} \cdot \theta + C_{kt} \cdot \lambda + \varphi + \varepsilon_{jt} \qquad (11)$$

where the dependent variable $\ln(Y)_{jt}$ indicates the log of one of two dependent variables associated with school district *j* in year *t*. The two outcomes of interest are: average price of a single family home, and the number of such homes. $Post_t$ is a binary variable indicating the period after the law was passed (i.e., equal to 1 for the 1997-98 through 2005-06 school years or equal to 0 for the 1994-95 through 1996-97 school years). $Treatment_i$ is a binary variable indicating low-performing high school campuses, these campuses are identified by their median American College Test (ACT) scores (i.e., equal to 1 for the 1st ACT quintile or equal to 0 for the 2nd ACT quintile). $Post_t$ multiplied by $Treatment_i$ is the interaction of these two indicator variables. $Ltrend_t$ is a linear time trend. X_{it} is a vector of time varying characteristics associated with high school *i* in year *t*. C_{kt} is a vector of time varying characteristics associated with county *k* in year *t*, and φ is a vector of Metropolitan Statistical Area (MSA) fixed effects. Lastly, ε_{jt} is a normally distributed random error term.

More specifically, the vectors described in equation (11) contain the following variables: X_{it} is comprised of the high school demographic controls and variables for the degree of urbanization at the high school's location. The high school demographics include: the percentage of minority students, the percentage of economically disadvantaged students, the percentage of gifted students, average teacher experience, and the teacher-to-student ratio. The urbanization controls are dummy variables for the school campus being located in a large or small city, a large or small urban fringe, or in a town. Rural campuses are the omitted category. C_{kt} is a vector of time varying county characteristics and has controls for the percentage of the population that is black, the percentage of the population that is Hispanic, the average number of persons per housing unit, the percentage of housing units that are owner-occupied, violent crimes per 1,000 people, and the percentage of county residents with a college degree.

The difference-in-differences approach requires that the treatment and control groups have similar attributes with the exception of the characteristic that places one group under the influence of the policy change and excludes the other. Our data does not always match up perfectly on observable characteristics, and this emphasizes the importance of the inclusion of the controls and a linear time trend. Omitted variables remain a potential source of bias, but as long as their effect is the same before and after the policy shift their effects will difference out.

Our theoretical model from the previous section cannot tell us whether the relative price change is driven by low or high-quality school districts, and neither can the difference-in-differences estimator. However, the difference-in-differences estimator has some nice properties when faced with some highly probable types of misspecification. Incorrect specification of S^* the border between the treatment and control groups will bias the difference-in-differences estimator towards zero. Moreover, incorrectly specifying the bottom edge of the treatment group or the top edge of the control group will also bias the difference-in-differences estimator towards zero.

Also, high school switching could realistically happen between any two schools of differential quality in the lower end of the school quality distribution. Not all switches will be from the 2nd ACT quintile of school quality to the bottom ACT quintile of school quality – there is a possibility for intra-quintile switches. However, if we assume that all switches inspired by the policy change are from higher to lower-quality schools, then failing to capture price changes coming from these intra-quintile switches will bias the difference-in-differences estimation towards finding no effect from the legislative change.

We will also run the difference-in-differences analysis for the top two ACT quintiles of the school quality distribution. High schools with top levels of academic performance should be placing much more than their top 10% of graduates into institutions of quality and as such should be largely unaffected by the implementation of the Top 10% Plan. If in the top end of the school quality distribution, relatively "poor" performing school districts (the 4th ACT quintile) are gaining in property value relative to better performing school districts (the 5th ACT quintile), then our proposed mechanism for property value changes in the bottom end of the school quality distribution would be called into serious doubt. Such a result would show that migration from higher to relatively "lower" quality school districts occurred in a part of the school quality distribution where the Top 10% Plan should have no effect, making it likely that any changes observed in the bottom part of the school quality distribution were caused by some other phenomenon all together. Our hypothesis will be greatly strengthened if there are noticeable differences-in-differences between the 2nd and the 1st ACT quintiles but not between the 5th and 4th ACT quintiles.

4.2 Herfindahl-Hirschman Index Analysis

Our second estimation strategy investigates if the number of schooling options available influenced the effect of the Top 10% Plan on property values. If it is costly to change school districts, which is the proposed mechanism for the property value changes, then it is less likely that households will react to the policy change. Therefore, if there are more local schooling options then it should be less costly to change school districts and there should be a larger reaction. For example, a move across the state to find a more strategic school seems unlikely because of the costs of finding new employment for the parents. However, a move of a smaller distance such as a couple blocks seems much more reasonable.[8]

One approach is to measure how concentrated the schooling industry is at the county level. This can be done by calculating the Herfindahl-Hirschman Index (HHI) for each county,

$$HHI = \sum_i s_i^2 \qquad (12)$$

[8] It is not necessary for the household to move because of the policy change to get a resulting change in property values. A change in values may be driven by households that were already planning to move and simply found lower-performing schools to suddenly be more desirable.

where s_i is the market share of each high school *i* in county *k*. For schooling, a measure of the market share is the number of students at the high school divided by the total number of students in the county. A HHI value close to 1 indicates a more *monopolistic* county, whereas a HHI value close to 0 indicates a more *competitive* county.

To analyze whether the number of schooling options available influenced the effect of the Top 10% Plan on property values, we interact the pre-policy county level HHI measure with our difference-in-differences estimator, yielding the following triple-difference specification,

$$\ln(Y)_{jt} = \alpha + \gamma \cdot Post_t + \beta \cdot Treatment_i + \delta \cdot Post_t \cdot Treatment_i + \tau \cdot Ltrend_t$$

$$+ \psi \cdot HHI_k + \phi \cdot Post_t \cdot HHI_k + \rho \cdot Treatment_i \cdot HHI_k + \pi \cdot Post_t \cdot Treatment_i \cdot HHI_k$$

$$+ X_{it} \cdot \theta + C_{kt} \cdot \lambda + \eta_{jt} \quad (13)$$

where π is now the parameter of interest, estimating the effect of the county HHI on the relative impact of the Top 10% Plan on property values.

A negative value for the coefficient π would imply that counties with less school choice showed a smaller reaction to the Top 10% Plan. This coefficient will tell us if school choice matters, but does not give us any information as to which part of the school competition distribution could be driving the result. To get at this point we split counties into quintiles based on their pre-policy years' HHI value. We then estimate a different-in-differences regression (equation 11) for each HHI quintile separately. This allows us to show how the effect of the Top 10% Plan differed for areas with different amounts of local schooling options in greater distributional detail by comparing difference-in-differences estimates for the HHI quintile subsamples. We conduct a parallel analysis for the number of housing units.

5. Data Sources and Sample Characteristics

5.1 Data Sources

The data for this study was compiled from five sources: the Texas Comptroller Property Tax Division (TCPTD); the Academic Excellence Indicator System (AEIS) from the Student Assessment Divisions of the Texas Education Agency; the National Center for Education Statistics (NCES); the U.S. Census Bureau; and lastly, the Federal Bureau of Investigation's Uniform Crime Reporting (UCR) database. The TCPTD, AEIS, and NCES all utilize Independent School District unique identification numbers that are identical across datasets and enable the linkage of variables in each of these datasets to their specific high school campuses.

The TCPTD database, contains information on total appraised home values for all school districts from 1994-95 to 2005-06, which covers both pre and post-policy years. This value is an aggregation of all residential homes that are served by a specific school district. Our analysis uses property values for single family homes only. This excludes multiple family dwellings and condominiums as well as all non-residential properties from our analysis.

Property appraisals in Texas follow a specific procedure. A property must be reappraised by its appraisal district at least once every three years, but this can be done more frequently. If a property is sold in a given year, then the sale price of the property is automatically used as the new appraised value of the property. For properties that do not sell, they are assigned a value based on how their characteristics compare to the characteristics of properties that were sold recently. The tax assessors generate a model based on recent sales and then use that model to predict what the assessment should be for the unsold properties. There are also limits on how much an appraisal can increase over the previous year's appraisal.[9] Given how Texas calculates its home appraisals our data accounts fairly well for property value changes as reflected by housing transactions.

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[9] An appraisal may not increase to more than the lesser of:

The TCPTD data also has information on the number of residential housing units in each school district. We use this information as one of our dependent variables, again restricting our attention to only single family homes. Our main dependent variable of interest, average price of a residence is obtained by dividing the aggregate value of all residential homes in a school district by the number of housing units in that district. All home values are in terms of 1990 dollars.

We use the AEIS data in the pre-policy years (i.e., 1994-95 through 1996-97) to identify low-performing high school campuses using the median American College Test (ACT) scores of the graduating class. The mean of the median ACT scores in the pre-policy years is then used to sort campuses into quintiles. This allows for the identification of poor-performing schools that are most likely to be targeted by parents who chose to move in order to increase the chances of their children being rank-eligible for automatic admission. While some states use the ACT as their assessment measure for the No Child Left Behind Act (NCLB) to hold schools accountable, this is not the case in Texas. Texas has its own state assessment test. Thus, using the ACT scores allows us to more reliably identify low-performing schools relative to higher-performing schools.[10]

The AEIS data also contains detailed information on student and teacher demographic variables; this allows us to calculate the percentage of minority students, the percentage of economically disadvantaged students (i.e., those who qualify for reduced price school lunch), the percentage of students that participate in a gifted program, average teacher experience, and the teacher-to-student ratio at a given high school. Our analysis is restricted to "regular" high schools; any alternative or magnet high schools as well as any juvenile delinquency centers are dropped from the analytic sample.

a) The sale price of the property if it sold that year, or
b) 110 percent of the previous year's appraisal plus the market value of any new improvements on the property.

[10] Our analysis was also conducted using the Scholastic Aptitude Test (SAT) scores and found similar results to that of the ACT analysis.

The NCES data link high school campuses to the urbanization level of their surrounding area. For the purposes of this study, campuses are considered to be located in a large city if they are in the central city of a Consolidated Metropolitan Statistical Area (CMSA) with a population greater than 250,000. Campuses are considered to be located in a small city if they are in the central city of a CMSA with a population less than 250,000. Campuses located in large and small fringes refer to addresses that are within the CMSAs for large and small cities respectively, but are not located in the central city of that CMSA. Campuses located in towns are in areas that are not incorporated into the above definitions and also have a population greater than or equal to 2,500. All other campuses are considered to be located in a rural setting, which is the omitted category in our analysis.

In addition, we use the U.S. Decennial Census and UCR data to merge in additional controls needed in the analysis. We use the 1990 and 2000 U.S. Decennial Censuses to create county-level variables to capture the trends in the percentage of the population that is black, the percentage of the population that is Hispanic, the average persons per housing unit, and the percentage of housing units that are owner-occupied. Lastly, the UCR database provides us with county-level variables on violent crimes (i.e., murder, rape, robbery, and assault).[11] Combining the UCR data with the Census data allows us to use estimates of the county-level violent crime rate for the school years of interest.

5.2 Sample Characteristics

Table 1 reports means and standard deviations for the variables used in our analysis. It also reports the data for the relevant subsamples. For our main specifications the subsample of interest is the bottom two quintiles of school quality with regards to the ACT score distribution.[12] The 1st quintile (bottom) serves as the treatment group and the 2nd quintile as the control group. The 1st

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[11] There are several measures of crime available in the UCR database. We use violent crimes because they are largely not financially motivated and thus exogenous with respect to local property values, as opposed to an alternate measure of property crimes (grand theft auto, larceny, etc.), which are highly endogenous.

[12] Appendix Table A1 shows descriptive statistics for all of the ACT quintiles. Table A1 provides the statistics for the quintiles used in the analysis of the top two quintiles as well for the middle quintile, which is not used in any of the analysis.

quintile of schools represents schools that are most likely to be targeted by parents seeking to take advantage of the Top 10% Plan. The 2nd quintile is a good approximation for schools that a strategic parent would want to move their child from in order to gain the benefits available in the bottom quintile. This is because the 2nd quintile is most similar to the bottom quintile in terms of academic performance and pre-policy access to selective state colleges and universities.

It is immediately noticeable that the 1st and 2nd quintiles are actually quite different in many of their other characteristics. One such characteristic is that property values are far greater in the bottom quintile than in the 2nd quintile. This is largely because the bottom quintile contains many more urbanized areas (34.8 percent versus 11.5 percent). Further evidence of this is found in Figure 3 that shows the time trends for the property values of the treatment and control groups. The 1st and 2nd quintiles appear as if they may be on different growth paths in the post period. This provides us with reason to control for trends in property values in our analysis. But even without these controls, it appears at first glance that the 1st quintile does have a discontinuous jump in property values after the Top 10% Plan is enacted on May 20th, 1997, however, less of a discernible jump in property values is observed for the 2nd quintile. Most importantly, Figure 3 also indicates that prior to the implementation of the Top 10% Plan there were no pre-existing trends between the treatment and control groups. Unfortunately, TCPTD only has available three years of pre-policy data. That said, arguably the pre-policy slopes of the treatment and control groups trend lines seem to be equal.

Additionally, Table 2 reports the differences without a linear time trend (or controls) for levels and logs of property values. As seen in panel B of Table 2, we observe a 2.9 percent increase in residential home values for low-performing school districts relative to the second quintile after the policy change.

Figure 4 presents a map that identifies the location of all the school districts in Texas by quintiles of district quality. School districts that comprise the treatment group (i.e., 1st quintile) are shown in blue, whereas school districts that comprise the control group (i.e., 2nd quintile) are shown in brown.[13] All other school districts in the 3rd, 4th, and 5th quintiles are shown in green. The locations of Texas' flagship universities (i.e., UT-Austin and Texas A&M, whose locations are marked by stars), as well as several other competitive universities are shown in Figure 5.[14]

The school districts that make up the treatment and control groups are geographically clustered around the Rio Grande and the Eastern part of the state. The specific clustering of the bottom two quintiles of school quality makes sense if one considers the racial residential patterns in Texas. Figure 6 displays the percentage of minorities (total, blacks, and Hispanics) in the population by school districts in 1990.[15] Hispanics reside predominately in South Texas, whereas blacks reside predominantly in the Eastern part of the state (close to the South). Figure 6 also illustrates the high degree of segregation that still exists in Texas.[16] Thus, it is no coincidence that the bottom two quintiles of school quality match up quite well with Texas' demographic racial patterns, and that Hispanics and blacks predominantly reside in (and attend) low-performing school districts.

6. Discussion of Results

6.1 Difference-in-Differences Analysis

The results for the regression adjusted difference-in-differences analysis are summarized in Table 3 for the two outcomes of interest: log average price (shown in panel A) and log number of

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[13] All maps are generated using the program ArcMap.

[14] Only the locations of the 16 competitive institutions are shown in Figure 5. There are a total of 35 four-year public universities in Texas, of these 35 universities 16 are regarded as being competitive universities. The classification of four-year public universities into competitive and less competitive institutions is based on an independent college ranking measure: Barron's Profiles of American Colleges 25th Edition (2003).

[15] Data used in the maps shown in Figure 6 are from the 1990 U.S. Census. The same maps were also generated using the 2000 U.S. Census and the exact racial residential patterns for Hispanic and blacks were seen using the 2000 U.S. Census data. The default classification method in ArcMap called *natural breaks* is used to display the data. The natural breaks method identifies breakpoints between classes using a statistical formula (Jenk's optimization). Jenk's method (1967) minimizes the sum of the variance within each of the classes. Natural breaks finds groupings and patterns inherent in the data.

[16] A very common measure of segregation is the entropy index (H), which is a multi-group measure of evenness indicating the overall degree that Hispanic, black, Asian, and non-Hispanic white populations are separated from one another. Texas's statewide entropy index is 0.33, this level of entropy classifies Texas as a state with high levels of school segregation (Tienda and Niu 2006; Reardon and Yun 2001).

housing units (panel B). This table only reports the estimated coefficients on the post indicator variable interacted with the treatment indicator variable, treatment indicator, post indicator, and the linear time trend. The layout of Table 3 is as follows: columns (1) present the unadjusted baseline effects, columns (2) controls for high school demographic characteristics, columns (3) further controls for urbanization characteristics, columns (4) are the fully controlled regression specification (i.e., high school characteristics, urbanization characteristics, and county level controls), and lastly, columns (5) are the fully controlled regression specification with the addition of MSA fixed effects.

As shown in panel A, there is a positive and statistically significant difference-in-differences estimate for all model specifications. The point estimate on the difference-in-differences estimator ranges between 0.032 and 0.065.[17] Our preferred specification (shown in column (5) of panel A), estimates a 4.9 percent increase of housing prices in low-performing school districts. This lends credence to our hypothesis of the Top 10% Plan influencing property values in the lower end of the school quality distribution. Specifically, this suggests that the benefit offered by the increased likelihood of college admissions from attending a lower-quality school has caused property values in the bottom quintile to increase in value relative to those in the 2nd quintile. Though the magnitudes of the point estimates do vary, the directions of these estimates are not sensitive and are fairly robust to the addition of controls and MSA fixed effects. Additionally, this should help mitigate any concerns regarding regressor endogeneity driving our results, since our results are not affected by the inclusion or exclusion of the control variables.

As for the point estimates on the control variables for property values, the point estimate on percent of minority students is positive. This is not surprising as this variable is negatively correlated with the variable for percent of economically disadvantaged students. Property values also appear to be positively related to schools with more students in gifted programs and a higher teacher-to-

[17] Similar results were found using median pre-policy ACT scores (as opposed to the mean).

student ratio. The urbanization controls all have positive point estimates that increase in magnitude as the school's location increase in population size. This is consistent with the standard urban economics result of higher land prices in more urbanized areas. Lastly, county education level has a positive and significant effect on property values.[18]

Panel B of Table 3, reports the difference-in-differences point estimates for quantity of housing. As seen in column (5), the number of housing units grew by 11.6 percent in low-performing school districts. In general, quantity of housing seems to respond with twice the magnitude of the average price, though both show strong positive reactions to the Top 10% Plan. Both of these variables showing a positive effect is theoretically consistent with an increase in the demand for housing units in a given school district, which would influence both price and quantity of housing in a non-negative manner.

The results from the placebo difference-in-differences regression analysis are summarized in Table 4. Table 4 has the same table layout as Table 3. Panel A reports the results for average home values and panel B reports the results for quantity of housing. The placebo analysis uses the top two quintiles of school quality instead of the bottom two quintiles. The placebo treatment group is thus the 4th quintile and the placebo control group is the 5th quintile. The most important result in Table 4 is that all of the difference-in-differences point estimates are either negative or statistically insignificant. This is not the effect that one would expect to see if the Top 10% Plan had caused strategic high school switching in the top of the school quality distribution.

6.2 Robustness Analysis

A concern that arises when conducting a difference-in-differences analysis is that the treatment and control groups are on different growth paths before the policy is enacted. In order for our previous analysis to provide unbiased estimates of the effect of the Top 10% Plan, it must be

[18] Appendix Table A3 reports the full regression results.

the case that the treatment and control groups exhibit common trends in the pre-policy period. This assumption in the difference-in-differences framework is commonly known as the parallel-trends assumption. Even though we use a linear time trend in our analysis it is still a possibility that the treatment and control groups are on different growth paths even after this inclusion. Figure 3 suggests that this assumption holds for our analytic sample. In this section we formally test the parallel-trends assumption. More specifically, we drop all post-policy observations (i.e., 1997-98 to 2005-06) and redefine the "post" variable to a "fake year" (i.e., 1995-96), choosing a year when the Top 10% Plan was not in effect.

Additionally, in 1995 Texas enacted open enrollment laws that gave students in poorly performing school districts the option to enroll in higher-quality schools without changing residence. This could have potentially increased property values in low-performing school districts making the effects we are attributing to the Top 10% Plan simply a residual change from the enactment of open enrollment. However, the open enrollment laws did not have much of an effect on property values at the school district level. This is because though school districts were required to accept transfer requests from within the district they were not required to accept out of district transfer requests. This made across district switches extremely rare and unlikely to influence property values. To verify this, the above test of the parallel trends assumption also coincides with the enactment of open enrollment laws. The results of this analysis are reported in Table 5. None of the regressions show any significant difference-in-differences point estimates. This helps to rule out open enrollment as an alternative explanation of our results.

Another concern is that our results could be driven by an event other than the implementation of the Top 10% Plan that occurred in our post-policy period. One such possibility is the passing of the No Child Left Behind (NCLB) Act on January 8, 2002. The first school year affected by the NCLB was 2002-03. To check against such a possibility and gauge the stability of the point estimates shown in Table 3, we re-run our difference-in-differences analysis using different sized post-period windows. Table 6 reports alternative regression results using three different sized post-period windows. Columns (1) report results using the full twelve year sample, which are the results from Table 3. Columns (2) report results using an eight-year period subsample, this analysis drops all of the school years in which NCLB was in effect: school years 2002-03, 2003-04, 2004-05 and 2005-06. Columns (3) further restrict the sample to a six-year period window, three years in the pre-policy period, and an equal number in the post-policy period. The difference-in-differences point estimates are positive and significant in all of the alternative subsample analyses. Thus, the results shown in Table 3 are robust to considering smaller windows around the implementation of the Top 10% Plan.

6.3 Herfindahl-Hirschman Index Analysis

The results for the number of schooling options are presented in Tables 7 and 8. Table 7 shows results from estimating equation (13). Panel A reports results for average price, and panel B reports results for the number of housing units. All controls used in column (4) of Table 3 are used in the regressions for Table 7. For the HHI analysis we do not include MSA fixed effects because they are too closely related to the key variable for sorting this analysis (the county level HHI values) to be used reliably. The coefficient of interest is the cross between the difference-in-differences estimator and the county level HHI. This is reported in the first row of each panel. The interaction is negative and significant for both property values and the number of housing units. This implies that the more monopolistic the county, the less the school districts in that county reacted to the implementation of the Top 10% Plan.

Table 8 shows the difference-in-differences estimates from subsamples of counties that are the most monopolistic (i.e., have a higher HHI value for schooling) at the bottom of the table, and the least monopolistic (i.e., having a lower HHI value for schooling) at the top of the table. Only the difference-in-differences estimators are reported, and each coefficient represents a separate regression. Again, all controls used in column (4) of Table 3 are used in the regressions for Table 8. MSA fixed effects were again not included because they are too closely related the quintile of HHI values to be used reliably given the sample size of the subsamples.

The main result for the property values and quantity of housing are reported in panels A and B and are very noticeable. The difference-in-differences point estimates only measure positive and significant in the locations with the largest amount of school choice. Specifically, counties that were more monopolistic in nature were unresponsive to the policy shift. In other words, areas where there are not a lot of local high school options to switch to did not respond to the Top 10% Plan. In contrast, the most responsive areas were counties with the lowest fifth of HHI measures. The difference-in-differences point estimates are only positive and significant for the least monopolistic school districts. Our results show that for counties with the lowest fifth of HHI measures, the average price and the number of housing units grew by 3.4 and 10.2 percent, respectively, in low-performing school districts.

Overall, the HHI analysis suggests that if the changes in property values are due to households moving strategically, then these moves are likely short distance. Furthermore, the HHI analysis reinforces the results presented in the previous section, as these results help to rule out alternative explanations. For instance, it is possible that the growth in property values in low-quality school districts was due to the housing bubble and rapid growth of subprime mortgages in the early years of the 2000s. However, any growth in property values due to this housing bubble should be orthogonal to the schooling option variation used in the HHI analysis.

Lastly, Figures 7 and 8 show the growth in property values from the pre-policy period to the post-policy period. Figure 8 adds the location of the least monopolistic counties from Table 8. A possible concern is that much of the treatment group is located in the southwest of Texas (as shown in Figure 4) and that some unique feature of the Rio Grande valley might be driving our results. Figures 7 and 8 should help to allay such concerns by showing that the growth in property values is spread across the state, and that the HHI analysis shows strong responses to the program in a different part of the state. Figure 8 also shows that for the least monopolistic counties, roughly 2/5 of the map area consists of the treatment and control groups and 3/5 of the map area consists of the other quintiles. This further reinforces that the HHI quintiles are orthogonal to the school quality quintiles.

7. Conclusion

Since its implementation over 10 years ago, the Top 10% Plan has received only mixed reviews. One of the main criticisms of this policy is that it is unfair to high-achieving students who attend elite high schools. Because the Top 10% Plan is solely based on class rank and this criterion is applied to all high schools that use grade point averages to rank students, there is redistribution in the university system from students who graduate from high-performing high schools to automatically admitted students who graduate from low-performing high schools. On the other hand, while the goal of the Top 10% Plan was to improve access for disadvantaged and minority students, the use of a school-specific standard to determine eligibility has led to some other unintended effects.

The estimate from our preferred specification implies that the implementation of the Top 10% Plan had a rate of return of 4.9 percent in the form of relative property value gains of the bottom quintile compared to the 2^{nd} quintile. We can add this to the rate of return for the number of housing units to get the relative effect of the Top 10% Plan on the property tax base, which is

16.6 percent.[19] If we arbitrarily divide the 16.6 percent evenly (i.e., assuming an 8.3 percent gain in aggregate property values in the bottom quintile and an 8.3 percent loss in aggregate property values in the second quintile) then one can see that the effect of the Top 10% Plan on the property tax base was potentially quite large. The average district in the bottom quintile would have gained \$344.9 million in their tax base and the average district in the 2nd quintile would have lost \$129.9 million in their tax base. If we apply an arbitrary property tax rate of 0.4796 percent (i.e., the property tax rate in the city of Austin, Texas in 2008) then there would be an additional \$1.65 million in property taxes for the average district in the bottom quintile and \$0.6 million less in property taxes for the average district in 2nd quintile. These property tax estimates are by no means exact, especially since we do not know how the relative value shift is distributed between 2nd quintile losses and bottom quintile gains, and because these are only changes in single family homes and do not include other taxable properties that could have been affected. However, these tax estimates do illustrate the type of effect that the Top 10% Plan had on the property tax landscape in Texas.

The results from the HHI analysis reinforce this point even further. The effects of the Top 10% Plan appear to be both spatially concentrated and of larger magnitude in places with many schooling options. This implies that these places were likely hit with particularly large distortions to their property tax bases. Any future implementations of or modifications to *top x-percent* plan admissions policies should bear in mind that the redistribution of educational resources will not be the only effect of such a policy change.

[19] Because aggregate home values are the product of price and quantity of housing, the total growth in aggregate home values can be decomposed into two separate growth components: the growth in average home prices and growth in the quantity of housing. Table A4 presents the regression results for the dependent variable log total appraised value (1990 dollars).

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Figure 1: Bid-Functions for Several Income and Taste Classes

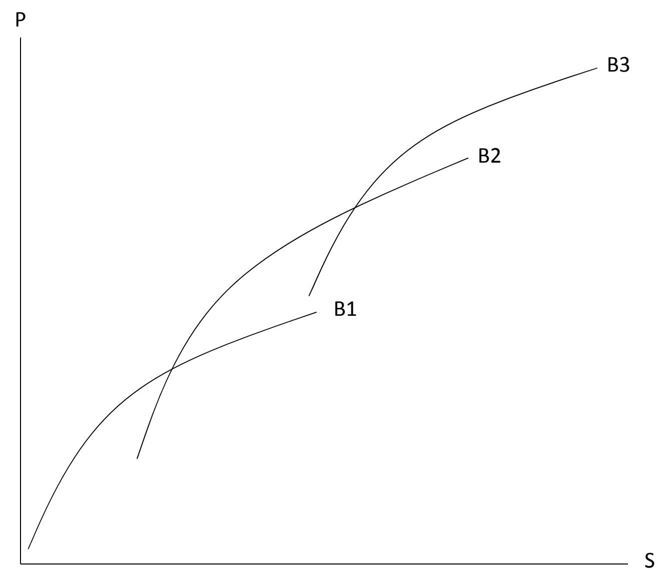


Figure 2: Bid-Functions Before and After the Top 10% Plan

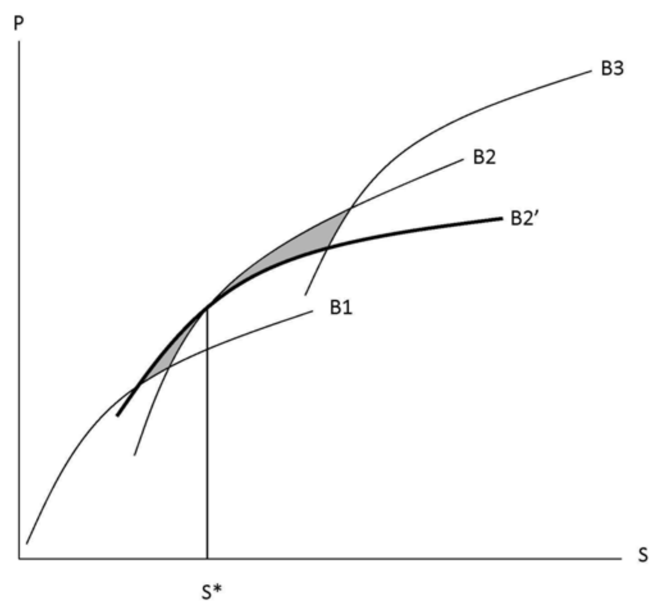
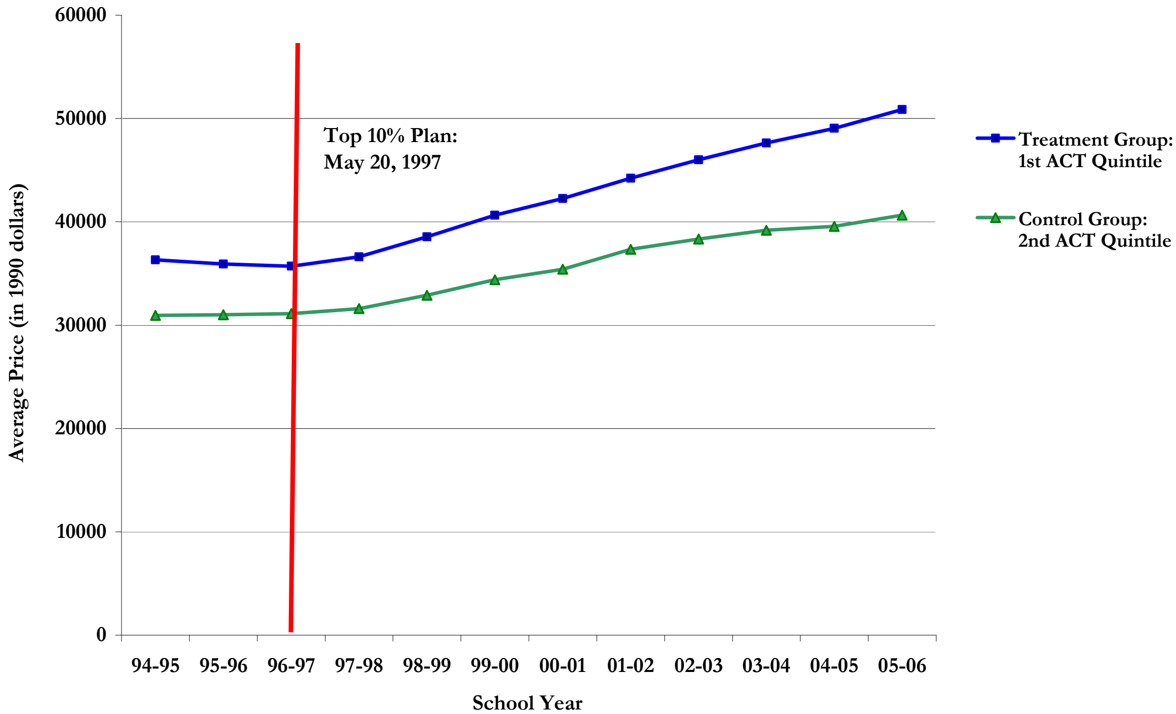


Figure 3: Trends in Average Home Values



Source: Texas Comptroller Property Tax Division and the Academic Excellence Indicator System from the Student Assessment Divisions of the Texas Education Agency.

Figure 4: Quintiles of School District Quality

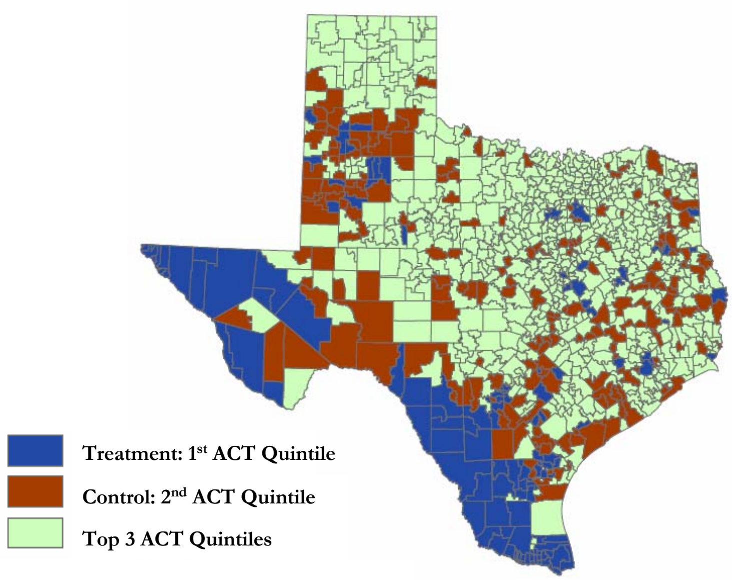


Figure 5: Quintiles of School District Quality –
Locations of Highly Ranked Universities

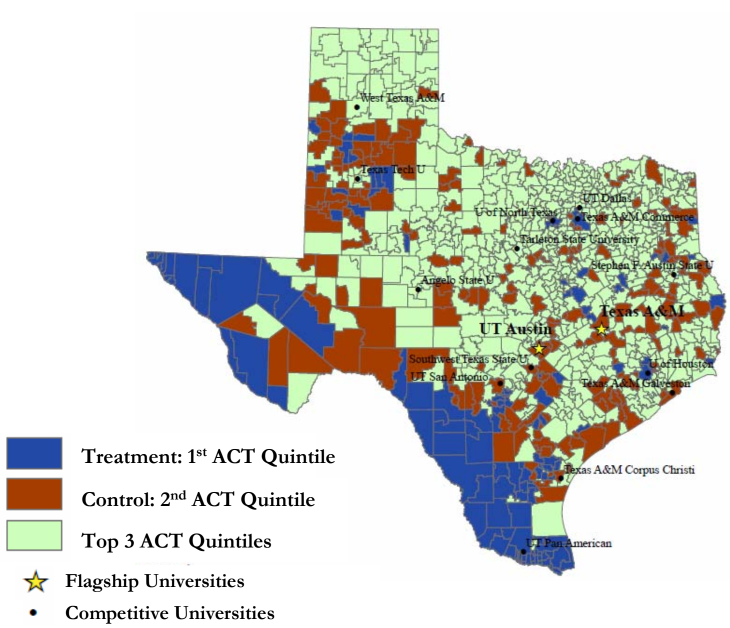
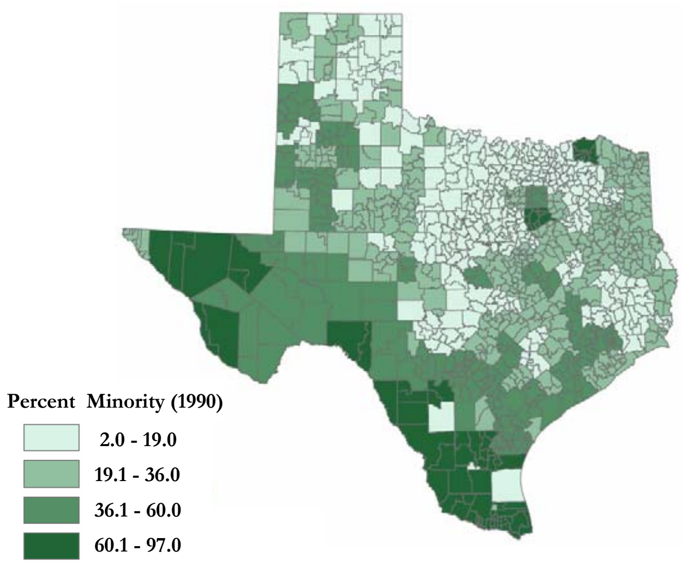
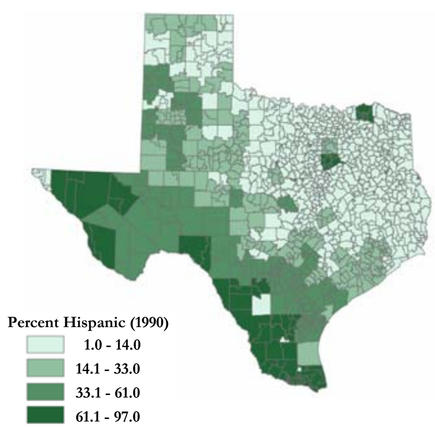


Figure 6: Texas School Districts by Percent Minority, Hispanic, and Black





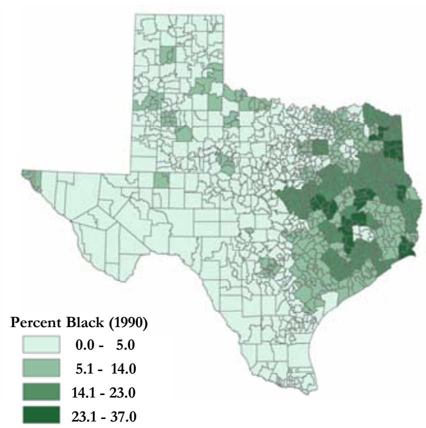


Figure 7: Bottom Two Quintiles of School District Quality – Percent Growth in Home Values

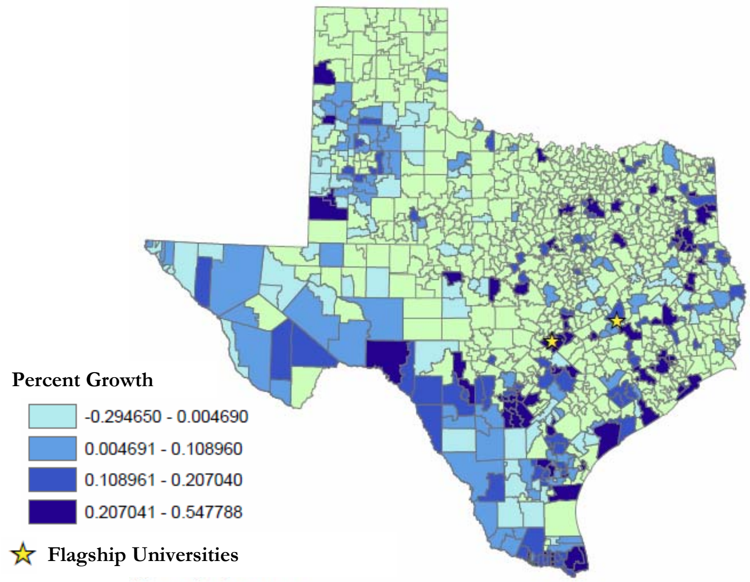


Figure 8: Bottom Two Quintiles of School District Quality – Percent Growth in Home Values for Non-monopolistic Counties

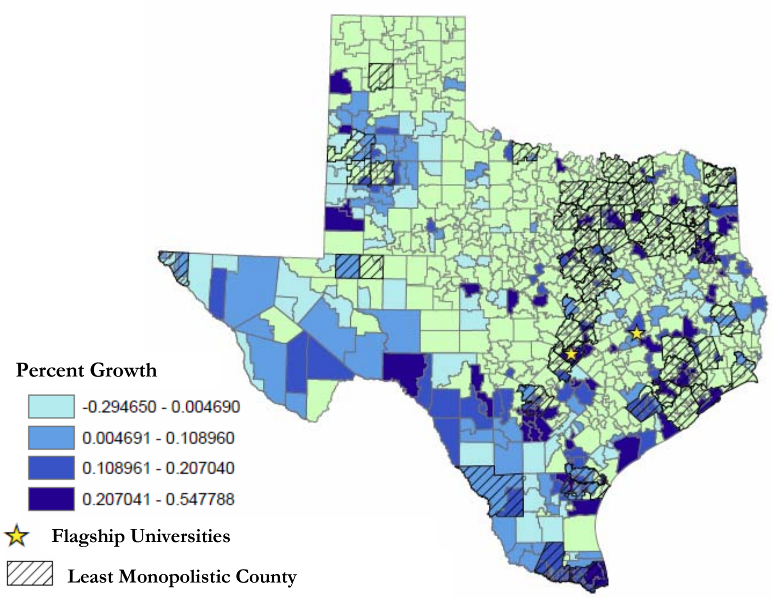


Table 1: Descriptive Statistics - Means and Standard Deviations

	School Quality Quintiles Based on ACT Scores		
	Subsample *(Both)*	2nd Quintile *(Control)*	1st Quintile *(Treatment)*
Dependent Variables			
Average Value per Unit (in thousands)	38.47	35.18	41.96
	(26.49)	(24.93)	(27.63)
Total Housing Units (in thousands)	37.53	20.42	55.62
	(72.75)	(52.08)	(85.95)
High School Demographics			
Percent Minority Students	0.690	0.514	0.876
	(0.240)	(0.177)	(0.136)
Percent Disadvantaged Students	0.571	0.466	0.682
	(0.187)	(0.137)	(0.167)
Percent Gifted Students	0.094	0.094	0.093
	(0.067)	(0.069)	(0.065)
Average Teacher Experience	12.641	12.659	12.623
	(2.515)	(2.467)	(2.565)
Teacher Student Ratio	13.046	12.300	13.835
	(3.291)	(3.249)	(3.148)
Urbanization Characteristics			
Percent in a Town	0.222	0.228	0.215
	(0.415)	(0.420)	(0.411)
Percent in a Small Fringe	0.061	0.066	0.056
	(0.239)	(0.248)	(0.229)
Percent in a Large Fringe	0.041	0.057	0.025
	(0.199)	(0.232)	(0.155)
Percent in a Small City	0.120	0.080	0.162
	(0.325)	(0.271)	(0.369)
Percent in a Large City	0.228	0.115	0.348
	(0.420)	(0.320)	(0.476)
Percent in a Rural Area	0.328	0.454	0.195
	(0.469)	(0.498)	(0.396)
County Level Characteristics			
Percent Black	0.092	0.100	0.084
	(0.420)	(0.079)	(0.085)
Percent Hispanic	0.427	0.299	0.563
	(0.269)	(0.189)	(0.274)
Persons per Housing Unit	2.848	2.730	2.972
	(0.321)	(0.246)	(0.343)
Percent Owner Occupied	0.682	0.703	0.660
	(0.092)	(0.092)	(0.085)
Violent Crimes (per 1,000 People)	0.017	0.017	0.018
	(0.008)	(0.009)	(0.007)
Percent with College Degree	0.172	0.170	0.174
	(0.075)	(0.077)	(0.072)
Observations (school-by-year)	5,650	2,910	2,740

Notes: Numbers in parentheses are standard deviations. Average value per unit is reported in real terms of 1990 dollars. 1st quintile (treatment group) is defined as the bottom fifth (0-20%) of school quality based on pre-policy ACT Scores. 2nd quintile (control group) is defined as the lower middle (20-40%) of school quality based on pre-policy ACT Scores.
Sources: Texas Comptroller Property Tax Division (TCPTD), 1995 to 2006; Academic Excellence Indicator System (AEIS), Texas Education Agency (TEA), 1994-95 to 2005-06; National Center for Education Statistics (NCES), 1994-95 to 2005-06; U.S. Census Bureau Decennial Census, 1990 and 2000; and the Federal Bureau of Investigation's Uniform Crime Reporting (UCR) database, 1995 to 2006.

Table 2: Difference-in-Differences
School Quality Quintiles Based on ACT Scores

Panel A: Average Price of Residential Homes (in thousands)

	2nd Quintile *(Control)*	**1st Quintile** *(Treatment)*	*Difference*
Pre Policy (1994/95 - 1996/97)	31.26	35.91	4.65
Post Policy (1997/98 - 2005/06)	36.93	43.76	6.83
Difference	5.66	7.84	**2.18**

Panel B: Log Average Price of Residential Homes

	2nd Quintile *(Control)*	**1st Quintile** *(Treatment)*	*Difference*
Pre Policy (1994/95 - 1996/97)	10.184	10.329	0.145
Post Policy (1997/98 - 2005/06)	10.310	10.484	0.174
Difference	0.125	0.155	**0.029**

Notes: Average price of residential homes is reported in real terms of 1990 dollars. 1st quintile (treatment group) is defined as the bottom fifth (0-20%) of school quality based on pre-policy ACT Scores. 2nd quintile (control group) is defined as the lower middle (20-40%) of school quality based on pre-policy ACT Scores.

Table 3: Difference-in-Differences Regressions of Log Average Price and Log Quantity of Residential Homes

	Panel A: Log Average Price (1990 Dollars)					Panel B: Log Number of Housing Units				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Post x Treatment	0.032 **	0.065 ***	0.047 ***	0.051 ***	0.049 ***	0.097 ***	0.166 ***	0.108 ***	0.123 ***	0.116 ***
	(0.015)	(0.213)	(0.017)	(0.016)	(0.016)	(0.035)	(0.060)	(0.035)	(0.035)	(0.035)
Treatment (1st quintile)	0.153 ***	-0.082	-0.087 *	-0.044	-0.060	1.401 ***	-0.143	-0.199 *	-0.227 *	-0.265 **
	(0.052)	(0.057)	(0.047)	(0.044)	(0.046)	(0.205)	(0.159)	(0.117)	(0.118)	(0.119)
Post (yr after 1996-97)	-0.036 ***	-0.044 ***	-0.040 ***	-0.031 ***	-0.031 ***	-0.035 ***	-0.082 *	-0.063 **	-0.066 **	-0.066 ***
	(0.009)	(0.015)	(0.011)	(0.011)	(0.010)	(0.013)	(0.046)	(0.024)	(0.026)	(0.025)
Linear Trend	0.027 ***	0.043 ***	0.038 ***	0.035 ***	0.034 ***	0.011 ***	0.050 ***	0.033 ***	0.026 ***	0.020 ***
	(0.001)	(0.122)	(0.002)	(0.002)	(0.002)	(0.002)	(0.007)	(0.004)	(0.340)	(0.006)
Constant	10.122 ***	8.841 ***	9.616 ***	8.545 ***	8.439 ***	7.670 ***	0.178	3.036 ***	1.178	0.104
	(0.035)	(0.132)	(0.129)	(0.257)	(0.297)	(0.137)	(0.339)	(0.338)	(0.823)	(0.908)
Controls:										
High School Demog.	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Urbanization	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
County Level	No	No	No	Yes	Yes	No	No	No	Yes	Yes
MSA Fixed Effects	No	No	No	No	Yes	No	No	No	No	Yes
Obs (school-by-year)	5,650	5,650	5,650	5,650	5,650	5,650	5,650	5,650	5,650	5,650
R^2	0.04	0.06	0.71	0.77	0.78	0.10	0.75	0.87	0.88	0.89

Notes: Numbers in parentheses are robust standard errors clustered by high school campus ID. 1st quintile (treatment group) is defined as the bottom fifth (0-20%) of school quality based on pre-policy ACT Scores. 2nd quintile (control group) is defined as the lower middle (20-40%) of school quality based on pre-policy ACT Scores. ***, **, * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4: Placebo Difference-in-Differences Regressions of Log Average Price and Log Quantity of Residential Homes

	Panel A: Log Average Price (1990 Dollars)					Panel B: Log Number of Housing Units				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Post x Placebo Treatment	-0.028 **	0.011	0.005	0.007	0.005	-0.102 ***	-0.007	-0.026	-0.031	-0.036
	(0.013)	(0.016)	(0.015)	(0.014)	(0.014)	(0.026)	(0.042)	(0.033)	(0.033)	(0.032)
Placebo Treatment	-0.443 ***	-0.146 ***	-0.134 ***	-0.087 ***	-0.095 ***	-0.514 ***	-0.129	-0.055	0.000	0.002
	(0.047)	(0.037)	(0.036)	(0.032)	(0.032)	(0.155)	(0.091)	(0.083)	(0.082)	(0.082)
Post (yr after 1996-97)	0.001	-0.054 ***	-0.057 ***	-0.051 ***	-0.050 ***	0.074 ***	0.152 ***	0.133 ***	0.139 ***	0.149 ***
	(0.009)	(0.015)	(0.014)	(0.013)	(0.013)	(0.019)	(0.035)	(0.029)	(0.030)	(0.028)
Linear Trend	0.037 ***	0.061 ***	0.061 ***	0.049 ***	0.050 ***	0.024 ***	0.019 ***	0.023 ***	0.014 *	0.021 ***
	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.007)	(0.006)	(0.007)	(0.008)
Constant	10.696 ***	10.268 ***	10.471 ***	9.838 ***	9.945 ***	8.216 ***	2.862 ***	3.721 ***	4.250 ***	4.530 ***
	(0.035)	(0.114)	(0.117)	(0.325)	(0.325)	(0.101)	(0.306)	(0.306)	(0.775)	(0.794)
Controls:										
High School Demog.	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Urbanization	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
County Level	No	No	No	Yes	Yes	No	No	No	Yes	Yes
MSA Fixed Effects	No	No	No	No	Yes	No	No	No	No	Yes
Obs (school-by-year)	5,491	5,491	5,491	5,491	5,491	5,491	5,491	5,491	5,491	5,491
R^2	0.19	0.64	0.66	0.73	0.74	0.03	0.73	0.77	0.79	0.81

Notes: Numbers in parentheses are robust standard errors clustered by high school campus ID. 4th quintile (placebo treatment) is defined as the upper middle fifth (60-80%) of school quality based on pre-policy ACT Scores. 5th quintile (placebo control) is defined as the top (80-100%) of school quality based on pre-policy ACT Scores. ***, **, * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

Table 5: Pre-policy Difference-in-Differences Regressions -- Parallel Trends Assumption Test

	Panel A: Log Average Price (1990 Dollars)					Panel B: Log Number of Housing Units				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Fake Post x Treatment	-0.002	0.009	0.003	0.002	0.002	0.016	0.032	0.014	0.010	0.008
	(0.005)	(0.011)	(0.007)	(0.007)	(0.007)	(0.013)	(0.039)	(0.021)	(0.020)	(0.019)
Treatment (1st quintile)	0.154 ***	0.032	-0.021	0.013	-0.006	1.395 ***	0.192	-0.031	-0.117	-0.174
	(0.052)	(0.060)	(0.050)	(0.048)	(0.050)	(0.205)	(0.182)	(0.130)	(0.131)	(0.132)
Fake Post (yr is 1995-96)	-0.004	-0.007	-0.006	-0.005	-0.005	-0.003	-0.004	-0.001	0.001	0.002
	(0.005)	(0.007)	(0.005)	(0.005)	(0.005)	(0.009)	(0.025)	(0.014)	(0.013)	(0.013)
Linear Trend	-0.003	0.009 **	0.006 **	0.005	0.003	0.013 **	0.034 **	0.027 ***	0.024 **	0.017
	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)	(0.006)	(0.016)	(0.009)	(0.011)	(0.012)
Constant	10.184 ***	9.098 ***	9.691 ***	8.585 ***	8.596*** ***	7.668 ***	0.699	3.098 ***	1.039	0.001
	(0.036)	(0.153)	(0.155)	(0.319)	(0.371)	(0.138)	(0.437)	(0.418)	(0.976)	(1.100)
Controls:										
High School Demog.	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Urbanization	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
County Level	No	No	No	Yes	Yes	No	No	No	Yes	Yes
MSA Fixed Effects	No	No	No	No	Yes	No	No	No	No	Yes
Obs (school-by-year)	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416	1,416
R^2	0.02	0.59	0.72	0.76	0.77	0.09	0.77	0.87	0.88	0.89

Notes: Numbers in parentheses are robust standard errors clustered by high school campus ID. Years of analysis are 1994-95, 1995-96, and 1996-97 (pre-policy data). 1st quintile (treatment group) is defined as the bottom fifth (0-20%) of school quality based on pre-policy ACT Scores. 2nd quintile (control group) is defined as the lower middle (20-40%) of school quality based on pre-policy ACT Scores. ***, **, * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

Table 6: Alternative Difference-in-Differences Regressions of Log Average Price and Log Quantity of Residential Homes

	Panel A: Log Average Price (1990 Dollars)			**Panel B: Log Number of Housing Units**		
	(1) **Full Sample:** 1994-95 to 2005-06 (3 Yrs Pre, 9 Yrs Post)	**(2)** **8-Year Window:** 1994-95 to 2001-02 (3 Yrs Pre, 5 Yrs Post)	**(3)** **6-Year Window:** 1994-95 to 1999-00 (3 Yrs Pre, 3 Yrs Post)	**(1)** **Full Sample:** 1994-95 to 2005-06 (3 Yrs Pre, 9 Yrs Post)	**(2)** **8-Year Window:** 1994-95 to 2001-02 (3 Yrs Pre, 5 Yrs Post)	**(3)** **6-Year Window:** 1994-95 to 1999-00 (3 Yrs Pre, 3 Yrs Post)
Post x Treatment	0.049 ***	0.032 **	0.025 **	0.116 ***	0.095 ***	0.079 ***
	(0.016)	(0.013)	(0.011)	(0.035)	(0.031)	(0.029)
Treatment (1st quintile)	-0.060	-0.034	-0.019	-0.265 **	-0.210 *	-0.200
	(0.046)	(0.046)	(0.047)	(0.119)	(0.121)	(0.123)
Post (yr after 1996-97)	-0.031 ***	-0.023 **	0.004	-0.066 ***	-0.057 ***	-0.019
	(0.010)	(0.009)	(0.008)	(0.025)	(0.020)	(0.020)
Linear Trend	0.034 ***	0.032 ***	0.023 ***	0.020 ***	0.024 ***	0.014
	(0.002)	(0.003)	(0.003)	(0.006)	(0.007)	(0.010)
Constant	8.439 ***	8.389 ***	8.486 ***	0.104	0.026	0.131
	(0.297)	(0.311)	(0.325)	(0.908)	(0.941)	(0.981)
Controls:						
High School Demog.	Yes	Yes	Yes	Yes	Yes	Yes
Urbanization	Yes	Yes	Yes	Yes	Yes	Yes
County Level	Yes	Yes	Yes	Yes	Yes	Yes
MSA Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs (school-by-year)	5,650	3,782	2,837	5,650	3,782	2,837
R^2	0.78	0.77	0.77	0.89	0.89	0.89

Notes: Numbers in parentheses are robust standard errors clustered by high school campus ID. 1st quintile (treatment group) is defined as the bottom fifth (0-20%) of school quality based on pre-policy ACT Scores. 2nd quintile (control group) is defined as the lower middle (20-40%) of school quality based on pre-policy ACT Scores. ***, **, * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

Table 7: DID Regressions of Schooling Market Power

	Panel A: Log Average Price (1990 Dollars)	Panel B: Log Number of Housing
Post x Treatment x HHI	-0.171 **	-0.252 *
	(0.070)	(0.140)
Post x Treatment	0.058 ***	0.162 ***
	(0.022)	(0.046)
Post x HHI	-0.218 ***	-0.013
	(0.047)	(0.083)
Treatment x HHI	0.226 *	-0.561 *
	(0.131)	(0.339)
Post (yr after 1996-97)	0.028 *	-0.058 *
	(0.016)	(0.035)
Treatment (1st quintile)	-0.073	-0.057
	(0.055)	(0.144)
Herfindahl-Hirschman Index (HHI)	-0.073	0.637 ***
	(0.084)	(0.236)
Linear Trend	0.035 ***	0.026 ***
	(0.002)	(0.006)
Constant	8.719 ***	0.838
	(0.263)	(0.821)
Controls:		
High School Demog.	Yes	Yes
Urbanization	Yes	Yes
County Level	Yes	Yes
Obs (school-by-year)	5,650	5,650
R^2	0.77	0.88

Notes: Numbers in parentheses are robust standard errors clustered by high school campus ID. Schooling market power is mesured by Herfindahl-Hirschman Index (HHI) per pupils. 1st quintile (treatment group) is defined as the bottom fifth (0-20%) of school quality based on pre-policy ACT Scores. 2nd quintile (control group) is defined as the lower middle (20-40%) of school quality based on pre-policy ACT Scores. ***, **, * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

Table 8: Differences-in-Differences Regressions
Subsamples by County Schooling Market Power

	Panel A: Log Average Price (1990 Dollars)	**Panel B: Log Number of Housing Units**
	1st Quintile HHI:	**1st Quintile HHI:**
	(Least Monopolistic)	*(Least Monopolistic)*
Post x Treatment	0.034*	0.102**
	(0.019)	(0.045)
Controls	Yes	Yes
Obs (school-by-year)	3,133	3,133
R^2	0.72	0.86
	2nd Quintile HHI:	**2nd Quintile HHI:**
Post x Treatment	-0.012	-0.054
	(0.048)	(0.097)
Controls	Yes	Yes
Obs (school-by-year)	818	818
R^2	0.57	0.76
	3rd Quintile HHI:	**3rd Quintile HHI:**
Post x Treatment	-0.043	0.051
	(0.039)	(0.110)
Controls	Yes	Yes
Obs (school-by-year)	923	923
R^2	0.58	0.72
	4th Quintile HHI:	**4th Quintile HHI:**
Post x Treatment	-0.079	0.175
	(0.058)	(0.128)
Controls	Yes	Yes
Obs (school-by-year)	532	532
R^2	0.51	0.62
	5th Quintile HHI:	**5th Quintile HHI:**
	(Most Monopolistic)	*(Most Monopolistic)*
Post x Treatment	-0.009	0.042
	(0.070)	(0.128)
Controls	Yes	Yes
Obs (school-by-year)	244	244
R^2	0.61	0.77

Notes: Numbers in parentheses are robust standard errors clustered by high school campus ID. Schooling market power is mesured by Herfindahl-Hirschman Index (HHI) per pupils. Each coefficient represents a separate regression of the log average price (in 1990 Dollars) or log number of housing units on a constant, post indicator, treatment indicator, post*treatment indicator, and a linear time trend, controlling for high school demographics, urbanization, and county level characteristics. ***, **, * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

Table A1: Descriptive Statistics Means and Standard Deviations for ACT Quintiles

		School Quality Quintiles Based on ACT Scores				
	Total	**1st Quintile** *(Treatment)*	**2nd Quintile** *(Control)*	**3rd Quintile** *(Not Used)*	**4th Quintile** *(Placebo Treatment)*	**5th Quintile** *(Placebo Control)*
Dependent Variable						
Total Appraised Value (in millions)	1,707.01	4,155.70	1,565.56	468.40	1,014.51	1,360.23
	(4656.37)	(7695.82)	(4678.03)	(2229.98)	(2871.57)	(2476.57)
Total Housing Units (in thousands)	22.26	55.62	20.42	7.16	14.08	14.33
	(52.69)	(85.95)	(52.08)	(26.08)	(33.70)	(22.86)
Average Value per Unit (in thousands)	42.85	41.96	35.18	30.53	40.65	66.78
	(32.33)	(27.63)	(24.93)	(17.76)	(23.24)	(47.34)
High School Demog. Controls						
Percent Minority Students	0.419	0.876	0.514	0.297	0.240	0.163
	(0.295)	(0.136)	(0.177)	(0.167)	(0.141)	(0.101)
Percent Disadvantaged Students	0.396	0.682	0.466	0.377	0.289	0.161
	(0.215)	(0.167)	(0.137)	(0.122)	(0.101)	(0.088)
Percent Gifted Students	0.096	0.093	0.094	0.094	0.099	0.098
	(0.068)	(0.065)	(0.069)	(0.064)	(0.077)	(0.062)
Average Teacher Experience	12.685	12.623	12.659	12.703	12.582	12.860
	(2.411)	(2.565)	(2.467)	(2.479)	(2.452)	(2.042)
Teacher Student Ratio	12.842	13.835	12.300	11.591	12.660	13.888
	(3.040)	(3.148)	(3.249)	(2.732)	(2.744)	(2.585)
Urbanization Controls						
Percent in a Town	0.231	0.215	0.228	0.240	0.239	0.232
	(0.421)	(0.411)	(0.420)	(0.427)	(0.427)	(0.422)
Percent in a Small Fringe	0.079	0.056	0.066	0.039	0.086	0.152
	(0.270)	(0.229)	(0.248)	(0.193)	(0.281)	(0.359)
Percent in a Large Fringe	0.069	0.025	0.057	0.059	0.039	0.165
	(0.253)	(0.155)	(0.232)	(0.236)	(0.194)	(0.371)
Percent in a Small City	0.093	0.162	0.080	0.043	0.102	0.078
	(0.290)	(0.369)	(0.271)	(0.203)	(0.303)	(0.268)
Percent in a Large City	0.112	0.348	0.115	0.021	0.039	0.040
	(0.316)	(0.476)	(0.320)	(0.142)	(0.194)	(0.195)
Percent in a Rural Area	0.404	0.195	0.454	0.599	0.487	0.334
	(0.491)	(0.396)	(0.498)	(0.490)	(0.500)	(0.472)
County Level Controls						
Percent Black	0.094	0.084	0.100	0.098	0.090	0.100
	(0.078)	(0.085)	(0.079)	(0.076)	(0.069)	(0.077)
Percent Hispanic	0.281	0.563	0.299	0.197	0.178	0.169
	(0.231)	(0.274)	(0.189)	(0.141)	(0.125)	(0.108)
Persons per Housing Unit	2.748	2.972	2.730	2.695	2.663	2.683
	(0.275)	(0.343)	(0.246)	(0.265)	(0.188)	(0.175)
Percent Owner Occupied	0.701	0.660	0.703	0.728	0.720	0.693
	(0.091)	(0.085)	(0.092)	(0.084)	(0.084)	(0.095)
Violent Crimes (per 1,000 People)	0.017	0.018	0.017	0.016	0.017	0.016
	(0.009)	(0.007)	(0.009)	(0.009)	(0.009)	(0.008)
Percent with College Degree	0.180	0.174	0.170	0.160	0.177	0.219
	(0.079)	(0.072)	(0.077)	(0.064)	(0.074)	(0.095)
Obs (school-by-year)	13,943	2,740	2,910	2,802	2,757	2,734

Notes: Numbers in parentheses are standard deviations. Total appraised value and average value per unit are reported in real terms of 1990 dollars. 1st quintile (treatment group) is defined as the bottom fifth (0-20%), 2nd quintile (control group) is defined as the lower middle (20-40%), 3rd quintile is defined as the middle (40-60%), 4th quintile (placebo treatment) is defined as the upper middle (60-80%), and 5th quintile (placebo control) is defined as the top fifth (80-100%). All school quality quintiles are based on pre-policy ACT scores.

Sources: Texas Comptroller Property Tax Division (TCPTD), 1995 to 2006; Academic Excellence Indicator System (AEIS), Texas Education Agency (TEA), 1994-95 to 2005-06; National Center for Education Statistics (NCES), 1994-95 to 2005-06; U.S. Census Bureau Decennial Census, 1990 and 2000; and the Federal Bureau of Investigation's Uniform Crime Reporting (UCR) database, 1995 to 2006.

Table A2: Difference-in-Differences
School Quality Quintiles Based on ACT Scores

Panel A: Total Housing Units (in thousands)

	2nd Quintile *(Control)*	**1st Quintile** *(Treatment)*	*Difference*
Pre Policy (1994/95 - 1996/97)	20.47	52.70	32.23
Post Policy (1997/98 - 2005/06)	22.03	56.11	34.08
Difference	1.57	3.41	**1.85**

Panel B: Log Number of Housing Units

	2nd Quintile *(Control)*	**1st Quintile** *(Treatment)*	*Difference*
Pre Policy (1994/95 - 1996/97)	7.75	9.11	1.36
Post Policy (1997/98 - 2005/06)	7.78	9.23	1.45
Difference	0.03	0.12	**0.09**

Notes: 1st quintile (treatment group) is defined as the bottom fifth (0-20%) of school quality based on pre-policy ACT Scores. 2nd quintile (control group) is defined as the lower middle (20-40%) of school quality based on pre-policy ACT Scores.

Table A3: Difference-in-Differences Regressions - All Controls Reported

	Panel A: Log Average Price (1990 Dollars)					Panel B: Log Number of Housing Units				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Post x Treatment	0.032**	0.065***	0.047***	0.051***	0.049***	0.097***	0.166***	0.108***	0.123***	0.116***
	(0.015)	(0.021)	(0.017)	(0.016)	(0.016)	(0.035)	(0.060)	(0.035)	(0.035)	(0.035)
Treatment (1st quintile)	0.153***	-0.082	-0.087*	-0.044	-0.060	1.401***	-0.143	-0.199*	-0.227*	-0.265**
	(0.052)	(0.057)	(0.047)	(0.044)	(0.046)	(0.205)	(0.159)	(0.117)	(0.118)	(0.119)
Post (school year after 96/97)	-0.036***	-0.044***	-0.040***	-0.031***	-0.031***	-0.035***	-0.082*	-0.063***	-0.066**	-0.066***
	(0.009)	(0.015)	(0.011)	(0.011)	(0.010)	(0.013)	(0.046)	(0.024)	(0.026)	(0.025)
Linear Trend	0.027***	0.043***	0.038***	0.035***	0.034***	0.011***	0.050***	0.033***	0.026***	0.020***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.007)	(0.004)	(0.006)	(0.006)
HS Demographic Controls										
Percent Minority Students		0.628***	0.108	0.004	0.006		3.460***	1.604***	2.258***	2.120***
		(0.122)	(0.122)	(0.138)	(0.145)		(0.360)	(0.272)	(0.340)	(0.346)
Percent Disadvantaged Students		-0.877***	-0.591***	-0.425***	-0.422***		-2.017***	-1.100***	-0.843***	-0.766***
		(0.119)	(0.116)	(0.105)	(0.110)		(0.320)	(0.270)	(0.261)	(0.259)
Percent Gifted Students		0.357	0.203	0.109	0.137		2.448**	1.812***	1.788***	1.544***
		(0.362)	(0.195)	(0.178)	(0.163)		(1.230)	(0.594)	(0.566)	(0.581)
Average Teacher Experience		-0.009	-0.016***	-0.007	-0.006		0.069***	0.038**	0.036**	0.044***
		(0.006)	(0.006)	(0.005)	(0.006)		(0.019)	(0.016)	(0.015)	(0.016)
Teacher Student Ratio		0.110***	0.047***	0.040***	0.036***		0.434***	0.210***	0.200***	0.189***
		(0.006)	(0.007)	(0.006)	(0.006)		(0.017)	(0.018)	(0.018)	(0.017)
Urbanization Controls										
Town			0.144***	0.158***	0.180***			0.784***	0.834***	0.919***
			(0.048)	(0.044)	(0.045)			(0.126)	(0.122)	(0.123)
Small Fringe			0.453***	0.322***	0.335***			1.402***	1.317***	1.440***
			(0.070)	(0.065)	(0.069)			(0.172)	(0.162)	(0.171)
Large Fringe			0.696***	0.338***	0.342***			1.838***	1.576***	1.570***
			(0.081)	(0.068)	(0.076)			(0.216)	(0.207)	(0.213)
Small City			0.650***	0.475***	0.503***			2.500***	2.436***	2.505***
			(0.057)	(0.054)	(0.066)			(0.156)	(0.160)	(0.172)
Large City			0.931***	0.600***	0.609***			3.406***	3.199***	3.240***
			(0.071)	(0.069)	(0.077)			(0.190)	(0.200)	(0.231)
County Level Controls										
Percent Black				0.313	0.364				1.652**	2.116***
				(0.288)	(0.306)				(0.684)	(0.738)
Percent Hispanic				-0.182	-0.197				-0.822**	-0.769**
				(0.143)	(0.151)				(0.347)	(0.374)
Persons per Housing Unit				0.283***	0.287***				0.268	0.307
				(0.071)	(0.074)				(0.175)	(0.193)
Percent Owner Occupied				-0.249	-0.053				1.008	2.202***
				(0.232)	(0.268)				(0.741)	(0.846)
Violent Crimes (per 1,000 People)				4.763***	5.018***				0.088	0.311
				(1.242)	(1.148)				(3.585)	(3.780)
Percent with College Degree				0.028***	0.027***				0.016**	0.028***
				(0.002)	(0.003)				(0.006)	(0.008)
Constant	10.122***	8.841***	9.616***	8.545***	8.439***	7.670***	0.178	3.036***	1.178	0.104
	(0.035)	(0.132)	(0.129)	(0.257)	(0.297)	(0.137)	(0.339)	(0.338)	(0.823)	(0.908)
MSA Fixed Effects	No	No	No	No	Yes	No	No	No	No	Yes
Obs (school-by-year)	5,650	5,650	5,650	5,650	5,650	5,650	5,650	5,650	5,650	5,650
R^2	0.04	0.57	0.71	0.77	0.78	0.10	0.75	0.87	0.88	0.89

Notes: Numbers in parentheses are robust standard errors clustered by high school campus ID. ***, ** , * indicates statistical significance at the 1%, 5%, and 10% level, respectively.

Table A4: Difference-in-Differences Regressions - All Controls Reported
Dependent Variable: Log Total Appraised Value (1990 Dollars)

	(1)	(2)	(3)	(4)	(5)
Post x Treatment	0.129***	0.231***	0.155***	0.174***	0.166***
	(0.043)	(0.076)	(0.045)	(0.043)	(0.043)
Treatment (1st quintile)	1.554***	-0.23	-0.285**	-0.271**	-0.325**
	(0.250)	(0.197)	(0.136)	(0.132)	(0.134)
Post (school year after 96/97)	-0.070***	-0.125**	-0.103***	-0.097***	-0.097***
	(0.017)	(0.058)	(0.030)	(0.031)	(0.030)
Linear Trend	0.038***	0.093***	0.071***	0.061***	0.055***
	(0.003)	(0.009)	(0.005)	(0.007)	(0.007)
HS Demographic Controls					
Percent Minority Students		4.088***	1.712***	2.262***	2.126***
		(0.436)	(0.324)	(0.397)	(0.411)
Percent Disadvantaged Students		-2.894***	-1.691***	-1.269***	-1.187***
		(0.386)	(0.330)	(0.315)	(0.318)
Percent Gifted Students		2.805*	2.015***	1.897***	1.681**
		(1.565)	(0.733)	(0.694)	(0.690)
Average Teacher Experience		0.060***	0.02	0.029*	0.038**
		(0.021)	(0.016)	(0.016)	(0.016)
Teacher Student Ratio		0.544***	0.257***	0.240***	0.225***
		(0.020)	(0.021)	(0.020)	(0.020)
Urbanization Controls					
Town			0.928***	0.992***	1.098***
			(0.136)	(0.131)	(0.133)
Small Fringe			1.855***	1.639***	1.775***
			(0.207)	(0.186)	(0.192)
Large Fringe			2.534***	1.914***	1.912***
			(0.259)	(0.237)	(0.249)
Small City			3.150***	2.911***	3.008***
			(0.184)	(0.188)	(0.210)
Large City			4.337***	3.799***	3.849***
			(0.229)	(0.240)	(0.275)
County Level Controls					
Percent Black				1.966**	2.480***
				(0.801)	(0.874)
Percent Hispanic				-1.003**	-0.966**
				(0.398)	(0.427)
Persons per Housing Unit				0.551***	0.594***
				(0.201)	(0.215)
Percent Owner Occupied				0.759	2.148**
				(0.834)	(0.923)
Violent Crimes (per 1,000 People)				4.852	5.329
				(4.254)	(4.262)
Percent with College Degree				0.044***	0.055***
				(0.007)	(0.010)
Constant	3.977***	-4.797***	-1.163***	-4.093***	-5.273***
	(0.168)	(0.383)	(0.346)	(0.835)	(0.911)
MSA Fixed Effects	No	No	No	No	Yes
Obs (school-by-year)	5,650	5,650	5,650	5,650	5,650
R^2	0.08	0.74	0.87	0.89	0.89

Notes: Numbers in parentheses are robust standard errors clustered by high school campus ID. ***, ** , * indicates statistical significance at the 1%, 5%, and 10% level, respectively.