



## School Spending and Student Outcomes: Evidence from Robin Hood and Tax Abatements

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### What We Studied

Our project attempted to answer the following question: what are the impacts of school spending on student outcomes? This is a central question for education policymakers at both the national and state levels.<sup>1</sup> Motivated to provide evidence, researchers have produced an extensive literature on this subject, spanning from the Coleman Report (1966) to Jackson et al (2015). However, many of these studies were limited in their abilities to establish a causal relationship (parental sorting to school districts) or by their scope (limited to few or unrepresentative districts). This is why the question of school finance still remains topical today. The Texas education system provides a unique opportunity to examine this question and make a large and significant contribution to the school finance literature. Over the last two decades, Texas made two large changes to school finance: Chapter 41 of the Education Code, introduced in 1993, and Chapter 313 of the Texas Tax Code, introduced in 2001. Chapter 41, commonly known as the Robin Hood redistribution program, was appropriately titled, as it sought to equalize spending between school districts by the state transferring funds from wealthier districts to poorer districts. Chapter 313 is a transfer program that facilitates large increases to a school district's revenues generated from property taxes.

To sum up, this project attempted to address the important question of the impact of education spending on student outcomes. In particular, our goals were organized into three research questions that address outcomes at different points in a student's life:

- 1) What is the impact of education spending on K-12 outcomes, including test scores, graduation rates, behavioral infractions, and others? [TEA Data and Testing Data]
- 2) What is the impact of K-12 education spending on students' decisions relating to college, including enrollment rates, major choice, financial aid, and graduation rates? [THECB Data, FADs Data, and NSC Data]
- 3) What is the long-run impact of education spending from K-12 on labor market outcomes, including employment rates and wage levels? [TWC Data]

Under the Texas Economic Development Act: Tax Code Chapter 313, school districts are able to offer temporary limitations on the property value of new investments, such as manufacturing plants, in the state.<sup>2</sup> This is an example of one of many policies that Texas has adopted to promote a business-friendly environment. Policies such as this seem to be achieving this goal; according to the Chief Executive's (magazine) annual survey, Texas has been ranked as the top state for business for the tenth year in a row.

<sup>1</sup> Indeed, there has long been a battle between the Texas government and its school districts over funding with seven different cases being brought to district judges over the past 30 years. Differing views on the state's education funding came to their most recent head in 2011 when two thirds of Texas school districts sued the state in response to the legislature voting for a \$5.4 billion cut to public education. See <http://www.texasobserver.org/texas-school-finance-ruling-still-unconstitutional/>.

<sup>2</sup> <http://www.ttara.org/files/document/file-4e36c23951e81.pdf>

A reasonable question to ask though is what impact policies like these have on an educational funding system that is so heavily dependent on local property taxes.<sup>3</sup> Having a better understanding of the complex relationship between Texas' desire to increase business opportunities and outside investment in the state and Texas' desire to raise educational standards can only serve to help policymakers more accurately weigh the costs and benefits of these two, often competing, goals.

The goal of Chapter 41 of the Education Code, more commonly known as the Robin Hood Plan, is to redistribute property wealth across school districts to allow for more equal opportunities in education. The amount of property tax recaptured from a district is determined by a formula based on property values and Weighted Average Daily Attendance (WADA) in the district.<sup>4</sup> In theory, the policy could have far-reaching impacts on not just traditional education outcomes, but also on future income inequality in the state of Texas. If students have a more equal opportunity to achieve success today, it could lead to more equal future opportunities and outcomes. This policy provides a unique setting to uncover the value of extra funding to some students and the reduction in funding to other students. This would be able to establish if there is a balance between increasing the funding for property-poor districts and reducing funding on the wealthier districts.<sup>5</sup> If not, then Chapter 41 has clear room for improvement in order to achieve its goal of raising the quality of education across Texas.

## **How We Analyzed the Data**

Our empirical strategy was based on a quasi-experimental methodology utilizing traditional regression approaches. Specifically, we looked to evaluate the causal impact of the policies by comparing the outcomes of an unaffected control group to a treated group. Treated and control groups should be observationally similar prior to the introduction of the policy. A concrete example would be two schools that had similar demographics and test score trends before a spending change. After the policy that affects the treated group is enacted, test score differences between the districts that result can be plausibly attributed to the spending change.

Passed in 2001 as HB 1200, Chapter 313 of the Texas Tax Code gave school districts the authority to enter into value limitation agreements with private companies. In essence, the school district's capped the amount of property taxes they would collect from the company while the company invested within the school district, primarily through new building construction and employment. The unique aspect of this program is that the Texas state government reimburses the school district for the foregone property tax revenue. School spending is thus significantly boosted when a private company decides to invest in Texas under such a tax abatement program. Our strategy, known in the economic and statistics literature as a difference-in-difference approach, was to compare the educational outcomes of students in districts that participated in Chapter 313 to students in districts that did not and before and after 2001. In the case of Robin Hood, our difference-in-difference strategy attempted to compare the outcomes of students in property-wealthy Chapter 41 districts that had wealth recaptured and students in property-poor Chapter 42 districts that received this recaptured wealth to students in districts that neither gave nor received any money in this program. We also proposed an alternate strategy to estimate these effects that would compare student outcomes in districts with property wealth to WADA ratios just above and just below the key policy cutoffs. This is known as a regression discontinuity or regression kink approach.

## **What We Discovered**

Unfortunately, our research was unable to provide any answers to the research questions we set out to answer. This is due to several unforeseen flaws with our empirical strategies that proved to be too difficult to overcome.

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<sup>3</sup> Of Texas' \$47.4 billion of public school funding, \$20.4 billion came from the state, \$21.4 billion came from local property taxes, and \$5.6 billion came from federal funds. (TTARA 2012)

<sup>4</sup> See <http://www.ttara.org/files/document/file-4f1732f763446.pdf> for a more detailed description of this process.

<sup>5</sup> There is some evidence that recaptured property taxes are being used by school districts in ways that do not directly relate to better educational outcomes, such as building new football stadiums. See <http://vype.com/dallas/2012/10/23/are-texas-high-school-stadiums-loopholes-in-robin-hood-plan/> for more details.

In the case of Robin Hood, identifying the school districts that had wealth recaptured was relatively simple. The data on how much wealth each district had recaptured each year between 1994 and 2014 is readily available from the TEA.<sup>6</sup> During this time, 380 districts had wealth recaptured and millions of dollars were recaptured every year. It was troubling though, that property wealth per weighted average daily attendance (WADA) does not do a particularly good job of predicting which school districts are having wealth recaptured. This is the measure that Robin Hood supposedly uses to determine a school's recapture status, but it seems that there are numerous exceptions made, and some schools with wealth per WADA measure below the threshold, seem to have wealth recaptured regardless. This makes any regression discontinuity or regression kink approach to estimating the impact of Robin Hood highly impractical. For these methods to work, it requires the funding to follow a simple threshold rule.

As for our difference-in-difference approach, identifying the districts that received money from the Robin Hood policy proved to be especially problematic. Robin Hood funds are disseminated to schools as part of the Chapter 42 program. A school district qualifies for this funding by not having enough local revenue to cover the baseline level of funding the state entitles every school district to. This status is not determined solely by a school district's property wealth per WADA as we previously believed. This makes it possible for the same school district to both have wealth recaptured and to receive recaptured wealth in the same school year. The issue with identifying Chapter 42 districts was also complicated by only being able to identify Chapter 42 districts in 2008. Unfortunately, this cannot be treated as representative of which districts qualified for Chapter 42 money any other school year. It is also possible for school districts to adjust their tax codes to change status, making their Chapter 42 status endogenous.

Another complication is that Chapter 42 funds received are included with all finance from the state in the ERC data. Since every district receives some funding from the state every year from a variety of sources it is not possible to reasonably estimate which districts receive money from Robin Hood. This was a tremendous disappointment for us as we expected to find the most interesting and policy-relevant outcomes for the students in districts that receive this funding. Furthermore, since every district might receive some money from this program, we cannot identify districts that neither gave nor received money from Robin Hood. As such, we have no control districts and cannot use a difference-in-difference approach either.

### **Policy Recommendations/Implications**

Any future proposals looking at the effects of Robin Hood ideally would have access to a list of Chapter 42 districts for every year the policy has been in effect. This would at least make it plausible to use a difference-in-difference approach to estimate the differential impacts of Robin Hood on students in property-wealthy and property-poor districts. Still, given that some property-wealthy districts seem to be able to avoid having wealth recaptured, any results from future projects should be treated with caution. The state may not be following the guidelines laid out by its own policy.

Regarding Chapter 313, the challenges stem primarily from identifying the exact timing and size of additional funds available to the school districts participating in the program. The funds technically come from the state and not the company that has entered into the abatement agreement, so they are lumped in with other state funds. There also remains the concern that districts that entered into these agreements are different than those that would serve as control districts. Having said that, these programs remain important to both business and education groups in Texas and recommend further evaluation.

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<sup>6</sup> A spreadsheet containing this data can be found at

[https://tea.texas.gov/Finance\\_and\\_Grants/State\\_Funding/Chapter\\_41\\_Wealth\\_Equalization/Chapter\\_41Wealth\\_Equalization/](https://tea.texas.gov/Finance_and_Grants/State_Funding/Chapter_41_Wealth_Equalization/Chapter_41Wealth_Equalization/)

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The University of Texas at Austin ERC is a research center and P-20/Workforce Repository site which provides access to longitudinal, student-level data for scientific inquiry and policymaking purposes. Since its inception in 2008, the Texas ERC's goal is to bridge the gap between theory and policy by providing a cooperative research environment for study by both scholars and policy makers. As part of its mission, the ERC works with researchers, practitioners, state and federal agencies, and other policymakers to help inform upon critical issues relating to education today.

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