

# Exit Options in Firm-Government Negotiations: An Evaluation of the Texas Chapter 313 Program

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## Abstract:

Existing research has examined how the mobility of capital shapes bargains between firms and governments. The major barriers to examining bargaining behavior include the large number of dimensions to these bargains, lack of knowledge of the utility functions of both firms and governments, and differences in capacity and strategy between firms and governments. In this paper, I examine data from a unique economic development incentive program in the state of Texas that holds almost all elements of bargaining constant, leaving only the ability of firms to walk away from a given location during the bargaining process. Using original data on the bargaining outcome as well as elite opinions, I document the extent to which firms that chose to locate in Texas made their decisions independent of this special economic development program. My findings suggest that only 15% of the firms participating in the program would have invested in another state without this incentive. The majority of these projects, and incentive dollars, were allocated to firms already committed to investing in Texas. Case studies of over 80 projects reveal that in many cases it was an open secret that companies had already committed to their investment locations prior to receiving the incentive. This implies the that structure of the program encourages the overuse of incentives.

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A pillar of political science research on the impact on globalization is the mobility of firms. Globalization, through the reduction of barriers for investment and trade, allows companies to move goods and investments. This not only shapes economic outcomes, but also affects the political relations between firms and government. In this paper, I focus on one aspect of mobility, the ability of a firm to “walk away” from a negotiation and choose to locate in another district. I argue that this ex ante mobility (as opposed to the ability to relocate after the initial investment) has a major impact on firm-government bargaining.

While some firms have limited choices on where to locate manufacturing production or mineral processing, many firms have the ability to credibly claim that they can choose a number of potential locations and thus bargain for better entry conditions, special regulations, or government-sponsored benefits such as grants or low cost loans in exchange for investments in their districts. Firms with more choices in potential investment locations can bargain better deals with governments, potentially challenging the sovereignty of the nation-state (Andrews 1994).

This distinction between mobility and immobility is conceptually hazy. Firms have the incentive to misrepresent their potential location options to maximize their bargaining leverage. In some cases, a firm’s location decision is obvious. Some firms, such as mining companies need to locate near mineral deposits, but in most cases the mobility of firms is based on a large number of factors that vary by firm. For example, when choosing a host country for an operation, an automobile producer considers prevailing local wages, access to the local market, and the network of suppliers in the region. Numerous locations have some combination of attractive attributes; therefore, the firm may be able to claim that there is a large set of possible investment locations. Thus, firms have private information on which

locations best suit their business interests, and keeping this information private can increase the firm's bargaining leverage.

For example, Patrick (2016) examines BMW negotiations for a new investment in South Carolina. South Carolina's incentive offer was increased from \$35 million to \$150 million after the company received a competing bid from the State of Nebraska. In a unique window into these negotiations, Patrick provides details on internal company documents, which note that Nebraska wasn't a contender for this investment.

Unfortunately for both governments and researchers, firms rarely reveal their strategies or true location preference even after a location decision has been made. A few bold executives may admit that they used other locations as mere bargaining chips, but most firms remain silent, or make the claim that whatever was negotiated was absolutely necessary. In the context of tax breaks, free land, or special regulations, firms often claim that these special deals were necessary to level the playing field with other potential investment locations.

To what extent are firms bluffing in their claims about needing government and to what degree are incentives necessary to entice firm investments? Answering this question has implications for the proper design of economic development policies and can inform broader questions about the relationship between government and states. Are firms so footloose that they can demand special government support or they will walk away from a location?

In this project, I gather data from a unique economic program used by the state of Texas to attract large, capital intensive investments. I then harness this data to measure firm mobility. The Texas Chapter 313 program is a tax limitation program (similar to an abatement) used to attract large, capital intensive businesses to Texas by forgiving a large

portion of a firm's property taxes. These school districts, along with their paid consultants, have the best available information on how necessary this program is for a firm's location decision.

Due to the structure of the incentive program as well as the role of local school districts in authorizing incentives—introduced in the next section—this program holds constant almost every other aspect of bargaining between firms and governments. The only major factor shaping the final negotiations is the ability of a firm to credibly threaten to walk away from the negotiations and take its investment elsewhere. This data on bargaining outcomes can be used as a proxy for the mobility of firms. I argue that school districts authorize essentially every incentive application, but vary the amount of supplemental payments negotiated based on the firm's ability to walk away from the investment. Using data from these Chapter 313 negotiations as well as a case studies of 86 negotiations, I find that the majority of these firms would have located in Texas even without support from this program. In many cases, this evidence was noted in Texas Comptroller certification reports, suggesting that the ineffectiveness of this program is an open secret, not the result of information asymmetries between firms and governments.

My work is unique from existing criticisms of the high cost of this program. Numerous reports have focused on the high cost of this program, projected as high as \$350,000 per job (Michaels 2016a). My findings suggest that these cost per job estimates are low, and the majority of tax dollars generate zero new jobs and no economic benefits to the state.

### **Firm-Government Bargaining**

Influential literature in management and political science has examined the bargaining relationship between firms and governments. Classic works such as Vernon (1971) and

Hymer (1976) have examined bargaining between firms and governments, including the credibility of bargains. Recent advances in firm-government bargaining have taken a few forms. Work such as Ramamurti (2001) has examined how the existence of third parties (home governments or international organizations) have further tilted the bargaining power from firms to governments. Others, such as Luo (2004) have shifted the debate from firm-government bargaining to a more cooperative model of business-government relations. Finally, extensive research built around the “obsolescing bargaining model” has examined how the terms of an initial bargain between a state and firm can be violated—namely, as a firm makes immobile investments in a country, the bargaining power shifts from the firm choosing an investment location to a government that can now more easily influence a firm with committed resources. Institutions that limit government discretion can be a source of bargaining strength. My contribution takes another direction, going back to the original firm-government bargaining relationship, focusing on the asymmetric information environment between firms and governments.

Numerous studies have analyzed this bargaining relationship by examining the many factors that figure into the bargaining power for both the firm and government. Superior and inimitable technology (Teece et al 1997) or other resources such as access to capital or export markets (Fagre and Wells 1982) all provide advantages to firms. Access to large domestic markets or natural resource deposits (Luo 2004) can strengthen a government’s bargaining power and can even organize domestic resources to obtain better bargains over time (Greico 1982). Summarized by Eden and Molot (2002) in the context of firm entry negotiations with host countries:

In any bargaining situation, the value of each party's resources is measured, not by its owner's evaluation, but by the other party's desire for those resources. The other party's valuation depends on the strength of desire/need for the particular resource and on what other alternatives are available should the negotiation fail.

This seemingly obvious point has been difficult to analyze given the multiple dimensions of the negotiations, and the secrecy of many of the bargaining outcomes. In the next section I will introduce a firm-government bargain over tax benefits through a program in Texas that allows us to hold constant many of the factors that influence bargaining strength, allowing us to measure which firms had the greatest ability to “walk away” from the deal.

The ability of a firm to “walk away” from a deal (cancel a relocation, choose an alternative location, or delay an expansion) is shaped by several factors. Many of these factors are private to the firms, and unlike democratic governments beholden to the public, the firms are better able to protect private information that could weaken a firm’s bargaining position (Markusen and Neese 2007).

In the context of the policy area of this paper—economic development incentives—firms can negotiate discretionary incentives ranging from cash grants, infrastructure improvements, to tax abatements that transfer benefits from taxpayers to firms. Firms can maximize these incentives by claiming they are evaluating numerous potential locations for an investment that have varying costs and benefits for the firm.

For example, in 2013 Boeing Company publicly expressed interest in building their new 777X aircraft in a location outside its traditional Washington State manufacturing location. A major labor dispute with the machinist union along with the potential to obtain new economic development incentives all provided potential motivation to consider alternative locations. Regarding this possible new location, a news outlet leaked Boeing’s wish list,

which included everything from buildings, a runway, free land, tax abatements, and a deep-water port (Logan 2013). Obviously not all locations could provide all of these benefits to Boeing, and thus many locations used existing economic development incentives or called special legislative sessions to provide new economic development incentives to Boeing.<sup>1</sup> In the end, 45 total locations scattered across 22 states made bids for the plant (Munshi 2013). However, Boeing chose to remain in Washington, earning a new and more favorable union contract coupled with an incentive deal from the State of Washington that could be valued as high as \$9 billion.

Public bidding wars like these have led journals to highlight the prisoner's dilemma of economic development incentives. Academics have long analyzed these economic development incentives, generally concluding that these programs, in aggregate, have very little impact on economic activity.<sup>2</sup> Central to these criticisms is that many of the firms have already picked an investment location and then they are maximizing incentives after they have chosen a location.

### **The Bargaining Context: The Chapter 313 Abatement Program**

For this project, I focus on a single economic development incentive program in the State of Texas. Economic development incentives targeted to individual firms, ranging from tax holidays to cash grants for worker retraining have become the primary economic development tool of cities and states, with some estimates as high as \$80 billion spent per

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<sup>1</sup> For example, Missouri's special legislative session provided an incentive deal that was considerably smaller (at under \$2 billion) but provide more generous benefits up front. (Lieb 2013).

<sup>2</sup> See Busse (2001) for a summary of 300 studies on the impact of economic development incentives.

year on these policies.<sup>3</sup> Every state, and 95% of cities, offers some form of economic incentives.

Texas has over two dozen incentive programs at the state and local level.<sup>4</sup> The flagship state incentive program—the Texas Enterprise Fund—is by far the largest state “deal closing fund” with an original budget of \$295 million and a 2016-2017 budget greater than \$100 million.<sup>5</sup> The structure of this fund is similar to 38 other state deal closing funds as it provides discretionary incentives to firms. Thus, rather than a dollar per job formula available to all firms, the Governor makes the decision on which firms receive incentives, the size of incentives, and the terms of these incentives in order to attract large, job creating investments.

But this state program pales in comparison to the Chapter 313 program. This program, which was created in 2001 by the State Legislature, allows local governments to provide tax abatements to firms for purposes of economic development. From 2005-2015 this program provided businesses with over \$1.4 billion in tax abatements (Texas State Auditor 2016). The existing Chapter 313 agreements are estimated to provide over \$7 billion in tax abatements over the lifetime of these projects (Senate Committee on Natural Resources and Economic Development 2016, 50). The purpose of this program, as outlined in Sec. 313.003 of the act is to:

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<sup>3</sup> This estimate is based on the New York Times public incentive database. This database, last updated in 2012 aggregates state and local incentives. Thomas (2011) estimates incentives costs at \$70 billion in 2005.

<sup>4</sup> For an overview of these programs see:  
<https://texaswideopenforbusiness.com/sites/default/files/06/06/16/incentivessummary.pdf>

<sup>5</sup> <http://siteselection.com/onlineInsider/sealing-the-deal.cfm>



- (1) encourage large-scale capital investments in this state;
- (2) create new, high-paying jobs in this state;
- (3) attract to this state large-scale businesses that are exploring opportunities to locate in other states or other countries;
- (4) enable state and local government officials and economic development professionals to compete with other states by authorizing economic development incentives that are comparable to incentives being offered to prospective employers by other states and to provide state and local officials with an effective means to attract large-scale investment;
- (5) strengthen and improve the overall performance of the economy of this state;
- (6) expand and enlarge the ad valorem tax base of this state; and
- (7) enhance this state's economic development efforts by providing state and local officials with an effective economic development tool.

This economic development program was passed by the Texas Legislature in 2001 in response to large manufacturers, namely Intel and Boeing, spurning Texas for locations with lower property taxes.<sup>6</sup> Thus, this program is designed to provide targeted tax abatements for a limited number of large, capital intensive projects.

How does the Chapter 313 program work? On the surface, it looks similar to many other state and local tax abatements. The program is built around the idea of attracting capital; therefore, the main requirement for participation in the program is the level of investment (as opposed to job creation). The state sets a limit on the minimum amount of capital necessary to participate in the program, usually between \$10 million and \$100 million, which depends on the school district's taxable property values and whether the school district is a rural or urban area. All investments that meet this requirement, as well as some additional requirements, can qualify for local property tax relief.<sup>7</sup>

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<sup>6</sup> Senate Committee on Natural Resources and Economic Development (2016) provides additional details on the creation of this program. One of the motivations for the creation of this program was based on Texas slipping in site selection ratings. It was later discovered that this fall in the rankings was based on a typo. See Michels (2016b) for a discussion.

<sup>7</sup> Requirements have changed over time and they include qualifying industries and wage requirements. For current 313 requirements see Texas Comptroller of Public Accounts. (2016).

The tax benefits of this program for the firm are not open to negotiation. Statute determines the abatement details based on the amount of capital invested and the location of the investment. For example, a company investing in San Antonio may propose a \$1 billion production facility employing 50 workers that would normally be subject to property taxes, but is only taxed on the first \$100 million in investment as opposed to the entire \$1 billion. A company that invests the same amount but employs 500 workers is provided the same benefit: property taxes on a \$100 million tax base rather than \$1 billion. Investments of \$2 billion see an even larger benefit, where these firms are also only taxed on the first \$100 million.

However, investing firms do have a minimum job creation requirement to participate in the program, often 10 (rural areas) to 25 (urban areas) direct or indirect (subcontractor) jobs. This is a minimum qualification, and thus companies that create 25 or 2500 jobs are not differentiated based on employment creation. Supplemental legislation allows some firms to apply for a waiver of the minimum jobs requirements. Numerous wind farms in the program propose two jobs attached to hundreds of millions in investment.<sup>8</sup>

These minor job requirements have led to criticisms of the program, but proponents argue that the goal of this program is to increase capital investment and the state's tax base. Firms that weren't going to locate in Texas were going to pay zero in taxes without the program and now the state receives taxes based on \$30-\$100 million per project. When the agreement ends in 10 years, the massive investment will be taxed at its market value.

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<sup>8</sup> This program has been criticized for leading firms to understate job creation in order to qualify for the program. Firms are required to pay above the county wage, and by understating total jobs, firms can count the highest paid jobs to meet the job creation and wage standards. (Legislative Budget Board 2011)

Subject to negotiation between school districts and the firms are what is called “supplemental payments” to the school districts. To understand this part of the negotiation, further details on the program are in order. This incentive program, like many abatement programs, affects a locality’s tax base. In the case of Texas, local school districts levy property taxes on homes and businesses to fund schools. These tax revenues become part of the Texas school revenue system and are subject to the “Robin Hood” plan. This plan allows school districts to raise their own revenue, but revenue above a certain threshold is redistributed to other school districts. Thus, high property valued school districts pay into the system while poorer school districts receive transfers as a method of tax base equalization.

For a firm to receive tax relief as part of this program, they need to negotiate an agreement with local school districts to participate in this program. Around the country, these programs are controversial with educators, leading to court cases in California where individual school districts and the California Teacher Association sued the state to shut down some of the tax abatement programs (Dolan et al 2011) and a recent canceling of many abatement programs in Chicago (Spielman 2015). Education associations such as the American Teacher Federation (2009) and National Education Association (2003) have taken public positions against tax abatements based on how these programs have negative effects on school revenues. In particular, tax abatements are often costly for schools and usually require some additional funding schemes to compensate school districts for reduced tax inflows (Weber 2003).

Texas had a similar history where many school districts resisted offering tax abatements to large companies, viewing the abatements as lost revenue, prior to creation of the the

current system of “Robin Hood” tax base equalization. Many of these businesses were going to locate in their districts anyway, and an abatement was a direct cost without any upside. When the Chapter 313 program was born in 2001, it contained two features that were beneficial to school districts.

First, central to this program is the role of school districts in both authorizing these incentives and being compensated by the state for participating in this program. According to Texas Comptroller of Public Accounts (2017):

The Texas Economic Development Act (Chapter 313 of the Tax Code), allows school districts to attract new taxable property development by offering a value limitation on the appraised value of the property for the maintenance and operations portion of the school district property tax. The local tax revenue the school district forgoes in this manner is substantially replaced through the school funding formula.

A controversial part of the legislation is the “supplemental payments” from firms to school districts to incentivize the district to execute the Chapter 313 agreement. As part of the agreement, school districts can negotiate a “supplemental” payment from the company, transferring some of the company’s tax benefits, almost always in the form of a cash payment, to the school district. According to an audit of the program, “Supplemental payments are paid outside of the school funding formula, and incentivize the districts to enter into agreements that may not be beneficial to the state” (Texas Comptroller’s Office 2010, 19).

How large are these supplemental agreements? According to data compiled by the Texas State Comptroller’s Office, agreements average over 30% of the firm’s tax benefit. Put another way, firms are agreeing to give back 30% of their millions in tax benefits to a school

district, in exchange for support of their application. As noted by Texas State Senator Davis in a hearing (Texas Senate Journal 2013, 3790):

This is a very generous program, and we know this because virtually every company that receives these abatements offers supplemental payments to school districts that are often equal to 40 to 50 percent of the net tax benefit. If companies are willing to give away half of their tax benefit then, clearly, those benefits are twice as large as they need to be.

This supplemental payment system has come under fire from educators. First, only 147 out of 1,247 Texas school districts have received these supplemental payments, generating inequalities across school districts. The school funding system generally limits these inequalities, but school districts can set up a foundation to receive the supplemental payments that are outside of the regular school district formula.

For the purpose of this paper, this supplemental payment system provides a unique window into negotiations between school districts and firms. The school districts are not economic development agencies representing broad local interests, weighing job creation, use of suppliers, or other factors that could shape the negotiations. But, rather, they are the gatekeepers for this program, where the school districts can support or reject a company's application and decide whether to allow a firm to receive an abatement as allowed through the state formula.

The State of Texas, with some delay, compensates the school districts for any abatements given, and thus supplemental payments are additional income for the school district because the school district bears no cost for the abatements themselves. These school districts have the incentive to maximize these supplemental payments from firms, while firms have the incentive to retain as much of their authorized tax abatement by

minimizing the supplemental payments. This is literally a divide the dollar game where firms and governments negotiate over this agreement.

Firms have few options on how to win over school districts. For example, promises of additional jobs have a limited impact on the district's decisions. The only option that these firms have is to threaten to halt investment in the district. This is the main dimension of negotiation between firms and local governments.

This negotiation between large multinational firms and local school districts may seem like a pitched battle where firms have in-house resources along with paid plant location and incentive consultants. However, the final feature of the program levels the playing field between the negotiating parties. As part of the Chapter 313 application, a large fee is paid to help the school districts hire their own professional consultants.<sup>9</sup> Thus, even the smallest school district can afford to hire a professional economic development consultant for help with the application and ultimately the supplemental payment negotiations.

These consultants for school districts are highly concentrated in a very small number of firms. Moak, Casey and Associates—an Austin-based law firm—has been involved in roughly two-thirds of the Chapter 313 agreements. Other law firms such as Underwood and O'Hanlon, McCollom & Demerath are active in numerous agreements. Greg Poole, school superintendent for Barbers Hill ISD, a school district that received numerous 313 abatements, founded Jigsaw Consulting as a for-profit consultancy focusing on this program. Because the school districts are all able to hire very capable advisory services to help negotiate these agreements (coupled with the large number of repeat negotiations by Moak,

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<sup>9</sup> These consulting contracts are lump sum payments along with fees for the annual filing of 313 paperwork. I am unaware of any school district consultants that charge as a percentage of supplemental payments.

Casey and Associates in particular), we are able to control for the quality of the negotiator and make a reasonable assumption that variation across agreements is most clearly driven by the potential exit options.

To recap, the unique features of the Chapter 313 program allows for a rare window into the bargaining between firms and governments. In this context, school districts offer tax abatements to firms, while bearing none of the costs of the abatement. These school districts bargain with firms, not over details such as job creation, but over how much of the company's tax savings will be given back to the school district as a supplemental payment. A firm's main bargaining chip with the school district is the ability to credibly claim that they can relocate in another location. Thus the final outcome of this supplemental payment negotiation is an indicator of a firm's ability to credibly threaten to locate elsewhere.

### **Bargaining Outcomes as a Proxy for Mobility**

What do the supplemental payments look like for these early Chapter 313 investments? As noted by a proponent of the program, "School districts and their consultants typically target a recovery of 40 percent of the tax savings of the project through supplemental payments." TTARA (2017, 7). Data from 257 projects suggest that many of these projects achieve close to 40%, where mean supplemental payment to school districts averages 31% of the company's tax benefits. What is more striking is the standard deviation of 18% suggests that these payments vary considerably across school districts and projects. Some school districts received supplemental payments smaller than 10% of the company's tax benefits (12.5% of the observations), while ten percent of school districts received over 48% of the benefits. In these last cases, firms were willing to return roughly half of their tax savings back to school districts.

What explains the variance in benefits? Evidence suggests that the companies with the greatest ability to walk away from the investment offered the smallest supplemental payments. While we cannot be sure which firms had the greatest outside location options, one of the main consultants revealed some key details in a press interview. In 2007, Lynn Moak—of Moak, Casey and Associates—had negotiated over half of the Chapter 313 agreements. According to a quote from the *Austin-American Statesman*, Moak claimed (Elder 2007):

“Frankly, I can think of only four that really needed the incentives” to locate in the district, Moak said. He named Toyota, for its truck plant in San Antonio; Texas Instruments, for a chip plant in Richardson; Motiva Enterprises LLC, which is expanding its refinery in Port Arthur; and Samsung, which is building a semiconductor plant in Austin.”

In this study I refer to these four companies above as the four *swing projects* in that 313 was necessary to swing the company’s decision to relocate to Texas. By 2007, 35 of these agreements had been signed, and all included supplemental payments with firms “volunteering” to give school districts 31% of their tax benefits, on average. But these supplemental payments range from less than 1% to 62% of the agreed-upon tax benefit. Specifically, all four *swing projects* listed above—Motiva, Samsung, Texas Instruments, and Toyota—offered school districts cash benefits of between zero and 7% of the company’s tax benefits. Supplemental payments for these four projects are some of the smallest in the sample. The only two other companies (out of 35) that provided less than 10% of the benefits to the school district, outside of the four listed above, were BASF and Sweetwater Power.



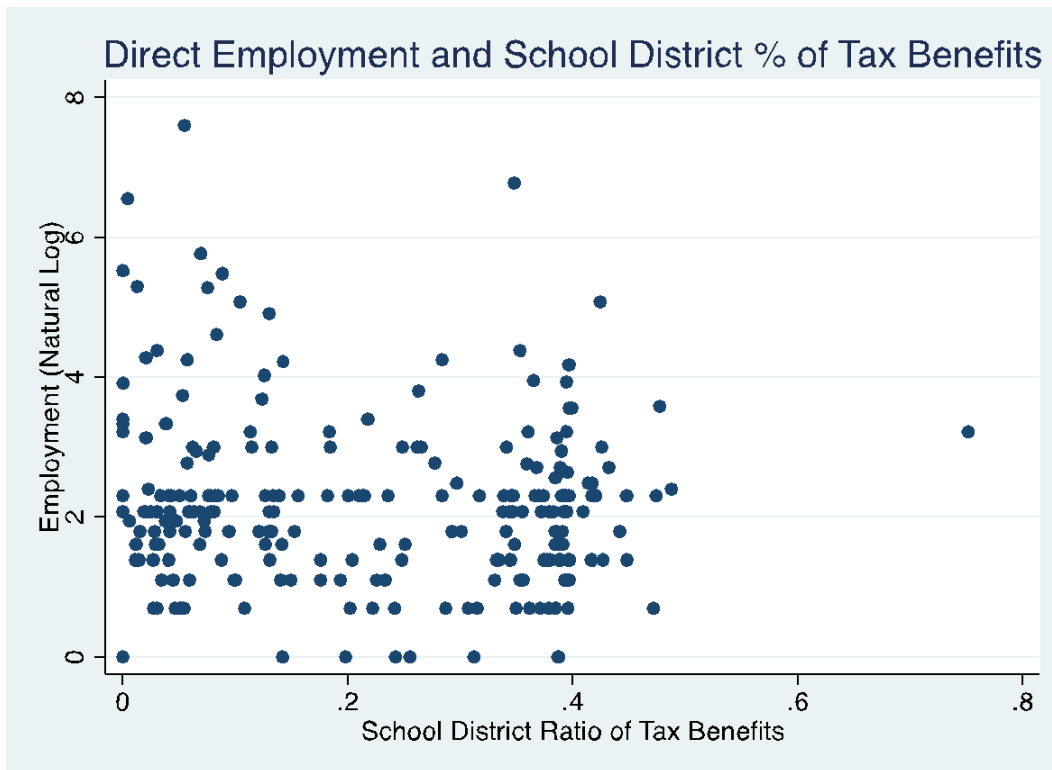
BASF's original investment in Brazosport Independent School District only provided the district with 2% of the tax benefits. Without additional information on this negotiation it is difficult to identify the factors that led to such a small distribution of benefits for the school district. But one telling piece of evidence is that a second project by BASF, an expansion operation authorized seven years after the original application and investment, led the firm to provide the same school district with 27% of the tax benefits. One interpretation is that BASF was perceived as having greater outside options for the initial investment, but an *expansion* could less credibly claim that it could locate elsewhere.

Sweetwater Power is an interesting case, where a consortium of investors chose to invest in a major wind generation facility, possibly examining numerous locations both inside and outside of Texas. Sweetwater Power's initial bargain plausibly reflected this mobility, offering the school district only 5% of the tax benefits. But Sweetwater Power chose to further expand this wind generation facility to neighboring school districts, physically linking these wind projects. A conjecture is that with limited mobility, these two subsequent negotiations led to some of the richest school district supplemental payments in the data set: 44% and 62% of the benefits.

These selective examples provide illustrations of the relationship between mobility and incentives. But how much does mobility alone affect the bargaining outcome? As outlined in the previous sections, local school district officials are not economic developers, and thus are neither mandated nor rewarded for generating employment or other economic development spillovers in their districts. In Figure 1, I plot the relationship between job creation and the share of the total tax savings school districts could negotiate back to the district as a supplemental payment.

As illustrated in the figure, a very large number of projects provide little more than a handful of jobs to local economies, and this classification generously includes both direct jobs and indirect jobs (contractors). The projects near zero on the y-axis, many of them wind farms, are distributed across a wide range of values. The few outliers on job creation are a number of manufacturers that are largely clustered near the lower tax share. Thus, while there is evidence that some of the very large employers could bargain down the supplemental payments made to school districts, the alternative explanation is that these manufacturers were the most mobile investors in the program.

**Figure 1**

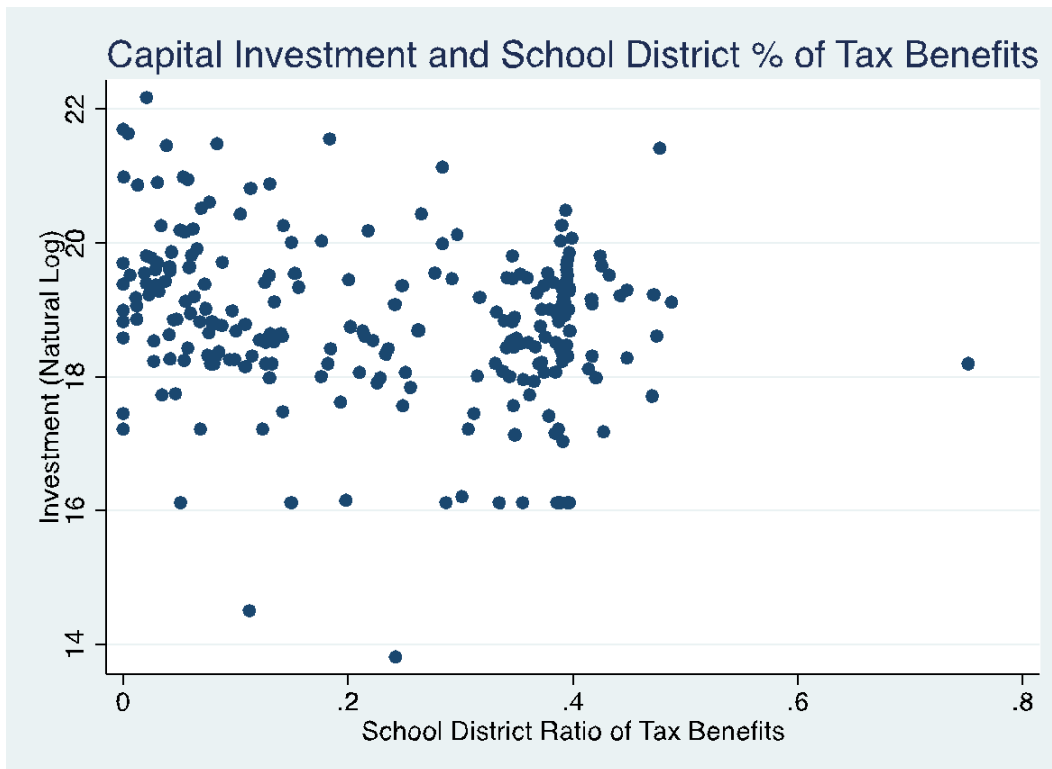


An alternative theory, built upon the management literature on bargaining, suggests that larger investments will have greater bargaining power (e.g. Farge, Nathan and Louis T. Wells 1982). Smaller school districts, strapped for resources, may be willing to forgo more of their

supplemental payments for a very large investor. Receiving a smaller percentage of a very large investment should be preferred to even a very large share of a small investment.

But as noted earlier, the only power a firm has in these negotiations, big or small, is the power to walk away. School districts, armed with professional consultants, can use their perceptions of the mobility of firms to negotiate a larger share of the tax benefits. I illustrate this point in Figure 2, where I plot the log of the company's investment in current dollars against the percentage of the firm's tax savings the school district receives as supplemental payments.

**FIGURE 2**



These descriptive accounts from Figure 1 and Figure 2 illustrate that some of the strongest traditional bargaining factors for firms do not translate into more bargaining power in this case. I argue that the distribution of tax benefits is a measure of mobility. Firms that can walk away negotiate lower payments. Firms that have already committed to locating in the district, and thus 313 isn't necessary for their decision, are pressed to provide additional supplemental payments to school districts.

### **Analysis**

In this section, I more formally validate the use of supplemental payment bargaining outcomes as a measure of the ability of the firm to relocate elsewhere. This analysis uses this supplemental payment data along with data on 257 total projects from 2002-2014 using compiled data from the Texas Comptroller's Office, and research coding of the original 313 applications for all projects. The majority of these project application documents are located on the Texas Comptroller's website. An additional 82 documents were accessed through an open records request on January 17, 2017. This data has been archived in PDF form.<sup>10</sup>

The use of original applications, as opposed to other potential documents, was a conscious choice to capture the original bargain between the company and the school districts. These documents, prepared by consultants and lawyers, provide information that is authorized by companies, school districts, and the Comptroller's Office.

However, these applications are not without limitations, as firms can "window dress" their true activities. For example, these applications require companies to explain why the incentives they seek are necessary for their investment in Texas. A few companies admit in

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<sup>10</sup> <https://osf.io/qnw55/>

this application that they are only considering a location inside of Texas.<sup>11</sup> Most applications provide a vague explanation on their potential to locate elsewhere.

But even these explanations are valuable information. Over 65% of the applications justify their participation based on the company's ability to locate in another U.S. location. Only 35% of these firms state that Texas is in competition with other countries for this investment. This suggests that the program is largely seen as a program to compete with other states and has little impact on overall investment in the United States.

These applications are often prepared jointly by a consultant or in-house counsel for the company, and a law firm representing the school district. As noted, a very small number of consultants are active in negotiations and our own inspection of these applications finds that over 50% are attributable to a single group. This provides further evidence that the majority of school districts are using professional consultants that have information about what other districts are offering. For the purposes of this study, we can assume that school districts, aided by paid consultants, are well informed negotiators seeking to maximize their supplemental payments.

Finally, these applications include details on the industry (NAICS code), size of proposed investment, employment, and other details on the project. As documented elsewhere, a strikingly large percentage of these projects are wind farms (over 48%). Three industries related to oil and gas account for an additional 26% of the program.<sup>12</sup> With the exception of some large manufacturing investments, such as Samsung, Hewlett Packard, and

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<sup>11</sup> Sabina Petrochemicals in their initial application indicates Deer Park, Texas as the alternative location. This is reported in Sadasivam (2017).

<sup>12</sup> This includes petroleum refineries (NAICS 324110), petroleum manufacturing (NAICS 325110), and industrial gas manufacturing (NAICS 325120).

Toyota, this program is largely used by capital intensive energy-related investments. These data from the application is merged with data from the Texas Comptroller's Office and the Texas Education Agency on school district enrollments and the status of the districts in the state's education financing system.

Central to this paper is the use of negotiated supplemental payments as a measure of a firm's ability to relocate to another district, and thus the total investment value that the 313 program is responsible for bringing to Texas. This ratio is calculated as the total supplemental payments divided by the firm's gross tax benefit from the program, both taken directly from the Comptroller's estimates.

My first validity test of this ratio as a measure of a firm's mobility is through an Ordinary Least Squares regression model with the bargaining outcome as the dependent variable for a small sample of bargains. As noted above, a consultant involved in negotiating the majority of the first 35 bargains publicly admitted that Chapter 313 was only central in attracting investment in only four of the thirty-five Chapter 313 agreements. The other thirty-one agreements were provided to firms that had already chosen to locate in Texas (and in some cases, had already broken ground).

$$\textit{Supplemental Payment} = \alpha + \beta(\textit{313 Necessary}) + \beta(\textit{Industry}) + \varepsilon$$

In Table A1, I present a simple model of bargaining outcomes using a dummy variable for these firms and including measures of the size of the investment (natural log of proposed investment) with additional robustness checks including industry control variables.

The main finding is that for these four investments, the investors could credibly claim that they could relocate outside of Texas and fittingly provided school districts with

substantially lower supplemental payments. These four projects were estimated as providing supplemental payments that were between 24 and 28 percentage points lower than the other projects in the sample. This finding is for descriptive purposes to validate the measure and to show that four observations, by definition, are driving these results.

To conduct a more rigorous validation check, I asked experts with knowledge of the 313 program to review the complete list of 257 projects. Given the detailed knowledge of the program that was necessary, only experts that had lobbied for or against the program or have been active in Texas economic development through a government agency or a consultancy specializing in incentives or economic development analysis were contacted. In total, five individuals provided a total of 106 responses on projects where they believed 313 wasn't necessary for the project to locate in Texas (82 projects) or that 313 was necessary (24 projects).<sup>13</sup>

Despite the high levels of expertise, a total of 11 projects produced mixed opinions on whether a Chapter 313 agreement was necessary. The main results presented in this paper only use those observations with no disagreement between experts in the coding. Thus, experts unanimously code the agreement in one way, and there are no dissenting experts.<sup>14</sup>

In the second panel of Table A1, I perform the same OLS regressions, but this time using expert coding on the necessity of Chapter 313. Note that this only includes the projects where experts had an opinion on the project. The projects where no expert weighed

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<sup>13</sup> The University of Texas IRB determined that this was exempt research (IRB 2016-11-0008).

<sup>14</sup> As a robustness test, I include only the 313 projects where there are at least two experts with the same opinion on the agreement. This is a higher standard since many projects only received an opinion by one expert. These observations were dropped in this robustness test.

in, including numerous wind farm projects, are not included in this analysis. The key to this analysis is to check if the expert opinions map onto the supplemental payment negotiations.

These expert data includes any project from 2002-2014. Therefore, I include one model with no control variables and an additional model that includes industry dummy variables as well as a dummy variable for projects accepted by the Comptroller's Office after 2010. This dummy variable can capture a reform to supplemental payments in late 2009 that capped the total payments based on the size of the school districts.<sup>15</sup>

Similar to the first set of results, projects to which experts viewed 313 as being the most essential had substantially smaller supplement payments. The magnitude is smaller than the first set of regressions, but the use of a larger sample size, multiple experts, and a longer time span provides additional confidence when harnessing the negotiation outcomes as a measure of Chapter 313's significance to these companies' decisions. Companies with outside options, and could credibly move elsewhere, provided much smaller payments to school districts for support of their application.

### **Estimating the Effectiveness of the 313 Program**

The results in Table A1 provide simple correlations between the levels of supplemental payments and expert opinions on which projects required a 313 incentive to locate in Texas.

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<sup>15</sup> In my estimates, controlling for factors such as industry and the date of the incentive (reforms in 2009 and 2010 capped supplemental payments to school districts) firms that were rated as having the ability to locate outside of Texas paid between 11 and 13 percent points lower supplemental payments. Agreements with some school districts are limited by 2009 and 2010 caps on supplemental payments (\$100 per student or \$50,000 in total). Since 2009, many companies and districts have signed agreements that allow supplemental payments to rise automatically to 40% of the company's net tax benefit if this cap is lifted legislatively in the future. Thus, the analysis overestimates the number of companies that located to Texas due to this program and underestimates the lost revenues for the state.



Experts weighed in on only subset of 313 projects, but how important was the 313 program for the 257 projects in the data set? To estimate this, I utilize a logit model using the measures of whether the incentive was necessary in Table 1. My baseline model takes the following form:

$$313 \text{ Necessary} = \alpha + \beta(\text{Supplemental Payment}) + \beta(\text{Post 2010 Dummy}) + \varepsilon$$

Thus, the importance of the program is simply estimated as a function of the supplemental payments and a time dummy. Additional robustness tests include additional control variables such as the size of the investment and the number of jobs created, as well as school district attributes including total attendance and if the school district was a net contributor to the state as a Chapter 41 district. These additional control variables have very little predictive power in explaining the value of 313. The supplemental payment ratio is the main predictor.

I present the tables of the results from these regressions in Table 1. In Figure 1, I provided predicted probabilities for all 257 projects in the database using the first measure of 313 effectiveness from Table 1. Four out of 35 projects needed the 313 program to come to Texas. Thus, I estimated the logit model of 35 projects and used this model to generate predicted probabilities for the additional projects using supplemental payment data and the dummy. These estimated probabilities indicate that the vast majority of projects were very likely to have come to Texas even without the 313 program. Over 60% of the projects are estimated as having a 0-10% probability of needing a 313 agreement. Only 12 projects received an estimate of more than 50% in their need for the 313 program.

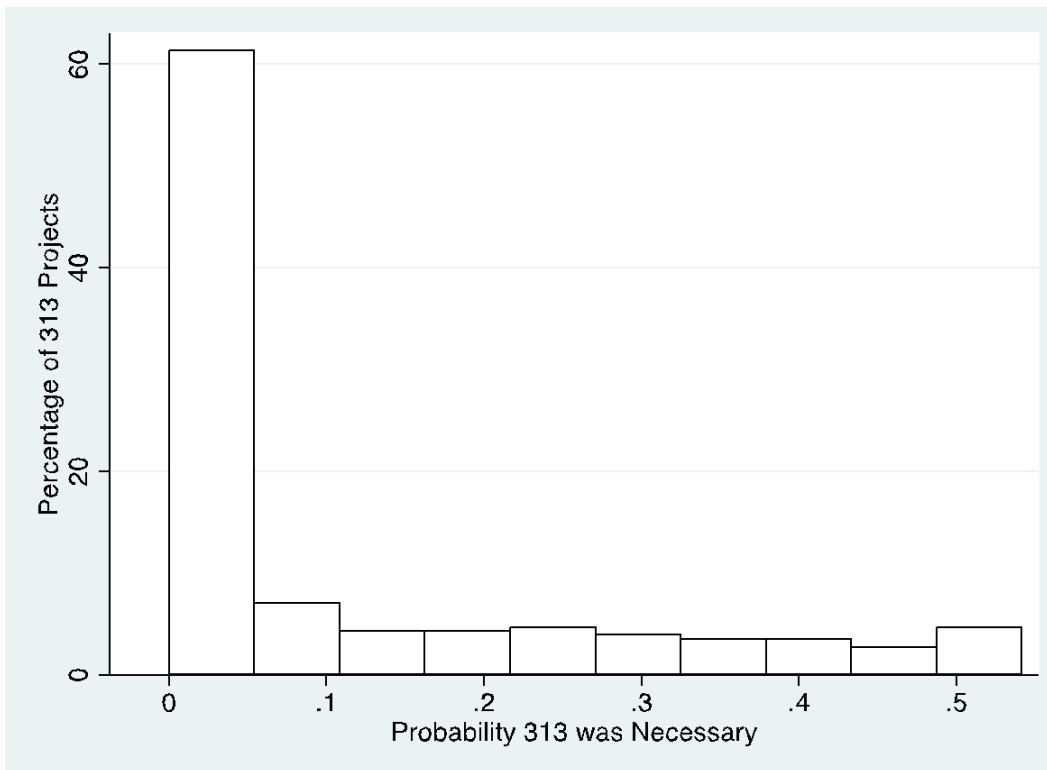
**Table 1: Logit models of redundant incentives**

	Tax Ratio			Alternative Tax Ratio		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Tax Ratio	-22.52**	-6.538**	-7.212*	-21.52**	-6.262**	-7.041*
	(8.838)	(2.847)	(4.009)	(8.440)	(2.596)	(3.601)
Post-2010		-1.246*	-1.435*		-1.222*	-1.426*
		(0.719)	(0.761)		(0.718)	(0.756)
Chapter 41 District			-2.047***			-2.110***
			(0.755)			(0.765)
Constant	0.166	0.103	1.554	0.164	0.125	1.650*
	(0.798)	(0.762)	(1.002)	(0.795)	(0.759)	(0.991)
Observations	34	82	82	34	82	82

*Note:* The independent variable *tax ratio* in models 1-3 is the supplemental payments/total tax benefit. Models 4-6 uses an alternative *tax ratio* which is calculated as supplemental payments/(total tax benefit-revenue protection payments).

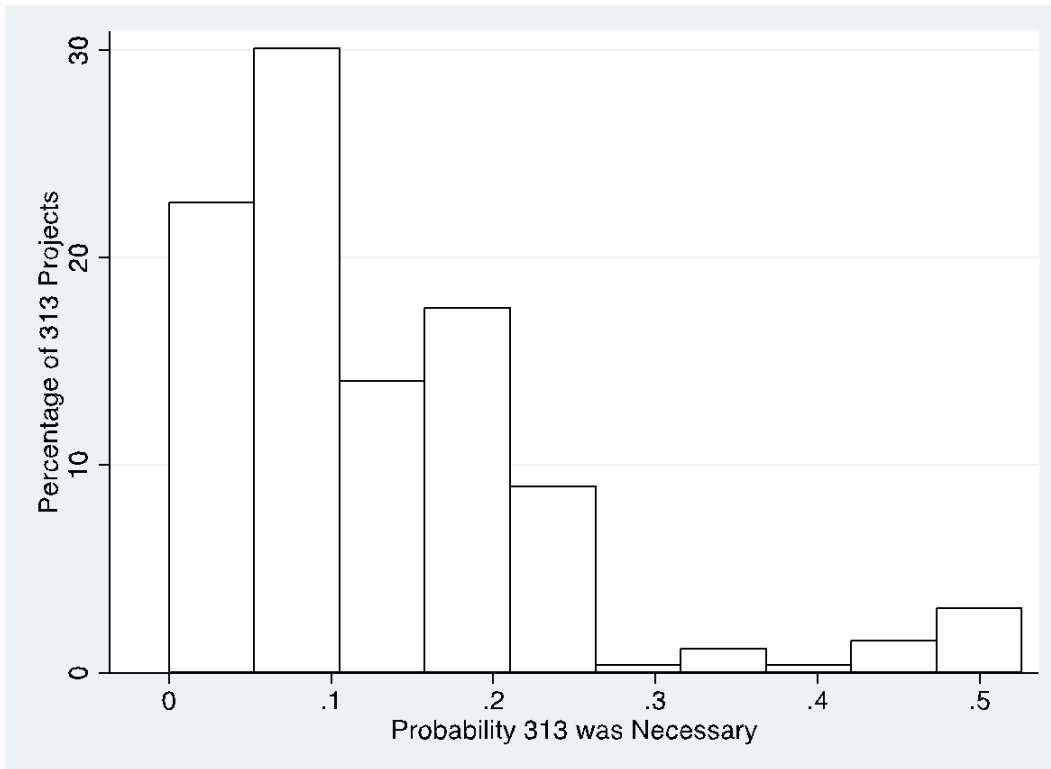
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Figure 1: Effectiveness Estimates based on Four Swing Projects**



These estimates are driven by a very small number of observations. Thus, I turn to the data based on expert opinions about the 313 program in Figure 2. Using the 82 observations with expert opinion data, I estimate a logit model and use this to generate predicted probabilities for all 257 projects. This model provides similar estimates and finds only 6 projects where the predictive probability of 313 being pivotal is greater than 50%. For both models, the mean predictive probability was between 10-13%.

**Figure 2: Effectiveness Estimates Based on Expert Survey**



These models provide a new way to estimate a program's effectiveness in bringing investments to Texas. These estimates are useful when potentially reforming incentive programs through better targeting. For example, many petrochemical investments along the Gulf of Mexico were seen as redundant by experts. These projects are also estimated as

being particularly likely to come to Texas absent the incentive program. More traditional manufacturing, such as Samsung and Toyota, are more likely to be affected by the program.

These estimates also provide at least some back-of-the-envelope calculations on the program's direct costs. Critics of the program could add up all the tax benefits provided to companies and claim these are all costs to the state. On the other hand, the common argument in support of this program is that the program has zero costs and numerous tax benefits to a community if 313 was pivotal in bringing the company to Texas. This work can help adjudicate this debate.

My estimates find that most of these projects would have come to Texas even without the 313 program, and in these cases 313 provides only costs and no benefits to the state (since the company would have come even without the program). Using these predicted probabilities, I estimate the total revenue lost attributable to 313 for the 257 projects to be \$4.4 billion.

### **Selective Case Studies: The Open Secret of Ineffectiveness**

The statistical analysis relies on the share of supplemental payments to districts as an indicator of a firm's ability to locate their investment in another location. In this section, I complement this analysis with case studies of 313 applicants to identify cases of firms that were only considering locating in Texas. I do this to both illustrate the existence of companies that likely would have located in Texas absent a 313 incentive and their inability to locate elsewhere was likely known at the time of their application for the incentive. I use two pieces of evidence to identify cases of firms that were very likely to invest in Texas independent of this incentive program. First, I inspect the original applications for a 313 tax limitation for a total of 86 projects. Second, I examine the timing of when companies broke

ground on their investment or formally announced their location decision. I discuss these two types of evidence below.

For all projects, companies submit a formal application to the Comptroller's office. These applications include basic information on the project including the industry of project, the amount of capital invested, and number of jobs projected to be created by the project. Along with this information, applicants are required to justify that a 313 incentive is a "determining factor" in their investment decision, and this justification is formally certified by the Comptroller.

Surprisingly, a few companies openly admit that they are not considering locations outside of Texas and thus 313 is not a "determining factor" in their decision. For example, Cargill's 2012 application for a new cattle feed facility investment on Bovina, Texas indicated that only Texas was being considered as a location.<sup>16</sup> While rare, these documented cases of companies admitting that only Texas was being considered is the first piece of evidence for 313 being unnecessary to shape an investor's decision.

Second, in numerous cases, companies broke ground for their investments prior to applying for a 313 incentive. For example, in December 2016, an article in the Texas Observer documented a number of cases where Energy Transfer Partners had already begun construction of a facility prior to applying for the program (Sadasivam 2016). In three cases, the company applied for the 313 without noting they had already begun construction. They later amended their applications noting that they had begun construction, yet they were still

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<sup>16</sup> In their revised application (#249) the company representative noted "After an extensive review of various locations in Texas we have selected Bovina as the site for the new manufacturing facility. Bovina's geographic position is centrally located in the heart of our customer's feed yard business."

allowed to participate in the program. In another case, Caterpillar announced their groundbreaking with then Texas Governor Perry on January 29, 2009, prior to the school board voting to approve the incentive.<sup>17</sup> These projects were all ultimately approved by the Comptroller's office. This is another set of examples where the effectiveness of Chapter 313 in attracting the company to Texas is questionable.

These are extreme cases of companies providing evidence for the ineffectiveness of 313 for their investment location choices. Despite this high bar for finding evidence that the company was committed to invest in Texas with or without the Chapter 313 program, I document a number of additional cases of companies indicating their plans to invest in Texas through their applications. I specifically focus on a set of applications that are not publically available. From 2002 to 2008, 86 company applications were submitted to the Comptroller's Office but were not made available to public. In 2010, HB3676 came into effect requiring the public posting of applications. I argue that after this point companies (and their consultants) know that application is more open to public scrutiny. I summarize these cases in Table 2 and discuss a number of these cases below.

The first application in the program, by Dow Chemical, is a shockingly open about their plans, noting in their cover letter that the new 313 legislation was just passed. In their justification of Texas as a location, Dow used a similar approach to other companies in noting Dow's global presence as evidence of their ability to locate elsewhere. But this application is especially candid on the investment decision in the footnotes. Footnote 1 notes links this new plant opening with the closure of another plant in LaPorte, Texas and

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<sup>17</sup> A full video of this groundbreaking can be found here:  
<https://www.youtube.com/watch?v=VxSjmq3fgVc>

the transfer of some of the jobs from this location to this new, 313 incentivized location.<sup>18</sup> Footnote 2, most relevant for this paper, states “Unavailability of rules/regs and application forms prevented filing prior to start of construction”. In a number of other cases, companies list specific alternative locations in Texas, providing evidence that locations outside of Texas are not under consideration (for example, Application #2).

The most surprisingly admission is JD Wind’s application (Application #54) for an 313 agreement three years after construction of a wind farm. In this application, JD Wind is clear to point out that the original application for a wind project was submitted prior to construction by a previous project owner, but that this was never voted on by the school district. Thus, since only the *filing* of the application is required prior to construction, JD Wind legally applied for a 313 for these built wind farms and for additional wind farms that would further expand the project. This project was ultimately approved by the school board and the Comptroller’s office for both the three-year old project as well as an expansion.

These cases of applications providing clear evidence of the inability to relocate are rare. More common are company announcements prior to application and in some cases the breaking of ground. The clearest cases of companies building their projects prior to having received approval for a 313 agreement are several wind farms. Wind farm construction, as opposed to the expansion of existing oil and gas investments, are much easier to track since

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<sup>18</sup> The footnote 1 states: “Please be aware that Dow has announced the probable closure of its PMDI production facilities at the LaPorte, Texas, plant sometimes in the 2005 time frame as these facilities will no longer be able to complete with the newer technology facility mentioned above. Although approximately 90 jobs are anticipated to be affected by such closure, Dow is and will be making every effort to redeploy those jobs within the company. It is our belief that we will create at least 10 new qualifying jobs at this new plant location as required to meet the stipulations of a value limitation agreement and we will re-examine this issue at the end of the two-year qualifying period to ensure compliance.”

the FAA collects data on the actual construction of wind towers within 5 days of completion.

One of the most striking example of ineffectiveness is Application #29 for Horse Hollow Wind Farm in Jim Ned Independent School District. This application was amended in November 2005 and was approved by the school district in December 2006. Numerous pieces of evidence clearly indicate that this wind farm was constructed prior to receiving approval for a 313 agreement.

First, the application, again accepted in December 2005, notes that construction will beginning in April of 2005 and that they were only considering Texas counties for this investment. Second, Horse Hollow wind was also the subject of the first court case against a wind farm for “nuisance” based on the noise from the wind turbines. Horse Hollow was sued by neighboring property owners in February 2005 because of wind turbine noise months before applying for the 313. FAA records indicate that permanent wind towers were completed by April 2005, and the Texas Public Utilities Commission documents specify that this wind farm was complete in October 2005. Thus, this wind farm was built prior to receiving approval for a 313 incentive.

These examples provide additional qualitative evidence that even of the projects accepted by the Comptroller’s office and approved by school districts, many of these companies had already committed to investing in Texas prior to receiving a 313 agreement. Perhaps most telling is that an audit of three projects in 2009 found that two 313 agreements



estimated worth over \$34 million were granted to Sandridge Energy. The State Auditor notes in their audit:<sup>19</sup>

The Comptroller's Office did not recommend that the two applications that SandRidge Energy, Inc. submitted be approved for agreements. That decision was based on the Comptroller's Office's determination that (1) SandRidge Energy, Inc. was unable to relocate the projects that were described in the applications to another state or another region of the state and (2) SandRidge Energy, Inc.'s use of the property was not one of the economic activities defined in Texas Tax Code, Chapter 313, as an eligible business activity.

These cases noted in Table 2, 29 out of 86 original applications, find evidence of companies participating in the 313 program that had a very high likelihood of investing in Texas with or without a 313 program. Equally important is the ability of a researcher to inspect the documents submitted to the school districts, comptroller's office, and other free information such as press releases and FAA documents on wind farm construction. This suggests that the redundancy of the program is an open secret to school districts and the Comptroller's office. Firms that openly admitted that they weren't considering alternative locations were granted millions in economic development incentives. Some companies were brazenly building their facilities in a school district, and in some cases completing the projects, and then calling on the school board to vote on their incentives. It is implausible that these school boards were unaware of the progress on these projects, but the structure of the program made authorizing these incentives in the school boards financial interest.

Evidence suggest that the Comptroller's office had access to information suggesting the ineffectiveness of this program, including some of the most recent projects. The Comptroller's office formally certifies that projects are a determining factor in their location decisions, but this packet often provides additional notes. For example, a number of wind

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<sup>19</sup> Texas State Auditor (2014, 36).

farms were found to have begun construction prior to the application to qualify for the the Federal Production Texas credit.<sup>20</sup> In some cases the Comptroller posted news reports of ground breaking ceremonies, company announcements, or investor presentations on the planning investments that called into question the company's claims of being able to relocate to another state.<sup>21</sup> These examples provide further evidence of companies that are not only highly likely to have been investing in Texas, but that this was an open secret to parties authorizing incentives.

## **Conclusion**

The evaluation of economic development policies is hampered by the inability to systematically analyze just how pivotal incentives were for the relocation, expansion or retention of commercial developments. This project attempts to directly address this shortcoming by examining a unique tax incentive program in Texas. The program's permission of "supplemental payments" to school districts in exchange for school district support for a state-funded tax incentive provides a comparable measure of the bargaining leverage of firms *vis-à-vis* school districts. I argue that the outcome of this bargain provides information on the ability of a firm to locate in another district.

Using media reports and expert interviews, I validate this measure of bargaining as a proxy for the ability of a company to relocate elsewhere, and thus the importance of the incentive program in attracting investment to Texas. This measure is then used to provide estimates of the likelihood that the incentive program was pivotal in attracting the firm.

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<sup>20</sup> For example see Agreements 1064, 1065, 1066, and 1069.

<sup>21</sup> For example, see agreements 1012, 1028, 1030, 1048, 1116, 1122, 1128, 1132, 1133, 1137, 1142, 1144, 1147, 1148, 1149, 1157, 1172, 1173, 1177, 1178, 1185, 1191.

The estimates, under all specifications, find that a very small percentage of firms in this program—less than 15% in most models—were swung by their incentive agreement to invest in Texas. The majority of firms were likely to relocate anyway, particularly the oil and chemical investments along the Gulf of Mexico. Additional case studies suggest that the ineffectiveness of this program in attracting investment is an open secret by school districts who authorized millions in incentives despite many projects already having begun construction. Certification reports from the Comptroller’s office suggest indicate that these incentives were authorized despite this evidence.

This study isn’t without its limitations. The focus in this study is on the impact of the 313 program on investment decisions of individual firms to invest in the state of Texas. Other important dimensions, such as the quality of the jobs created, can be impacted by economic development programs. The comptroller’s office has noted that the wages paid are actually below the average manufacturing wage in the state, thus making it unlikely that this program is increasing the quality of the jobs.

A second possibility is that this project is responsible for attracting investment that is serving as a catalyst for Texas economic development. For example, the attraction of Samsung and Toyota could lead to economic development spillovers. This study isn’t designed to quantify these spillovers, and future research could simulate the economic development impact of the 15% or so of the projects that were attracted to Texas by the 313 program and compare this to the total cost of the program.

But the overall implications of this study suggest two important points. First, the design of the program leads school district to essentially authorize ever 313 incentive, even for projects that are already constructed. Second, the limited role of the Comptroller’s office

leads to an authorization of incentives for the vast majority of these projects. Thus, the poor targeting of this project isn't due to information asymmetries between governments and firms. Even firms that clearly have no relocation options are allowed to participate in the program.

**Table 2: Companies only considering Texas for their investments**

	Company	Location	Description
1	Dow	Brazoport ISD	Application cover letter (footnote 2) states construction began prior to this application.  Sources: Application #1
2	Sabaina (Atofina BASF)	Port Neches ISD	Application lists Deer Park, Texas as alternative locations on application.  Source: Application #2
13	Praxair	Port Arthur ISD	Announcement of plant on April 1, 2003 prior to application in August 2003.  Source: <a href="https://tinyurl.com/y9jhx594">https://tinyurl.com/y9jhx594</a>
22	Premcor	Port Arthur ISD	Plant announced at shareholder meeting on May 3, 2003, prior to October 6, 2004 application.  Source: <a href="https://tinyurl.com/ydhqnrnu">https://tinyurl.com/ydhqnrnu</a>
24	BASF	Brazoport ISD	Plant announced via BASF communications on December 15, 2004, prior to January 6, 2005 application.  Source: <a href="http://www2.basf.us/corporate/121504_sap.htm">http://www2.basf.us/corporate/121504_sap.htm</a>
28	Windkraft Nord Texas	Hermleight ISD	Application approved by school district 10/18/05 FAA Record on 8/18/05 of construction of wind towers.  Source: FAA data: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a>
29	Horse Hollow	Jim Ned ISD	Application submitted on 5/25/2005 and accepted by school district on 12/14/05. Application states they will start production in April 2005. FAA date indicates 4/18/05 construction for some towers. Public Utility Commission of Texas list as in service on Oct 2005. Operation was subject to a wind nuisance lawsuit in Feb 2005 (prior to approval).  Application states they are only looking at TX counties  Source: Application #29 Source: Public Utility Commission: <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a> Source: FAA data: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a> Source: Lawsuit: Rankin v. FPL Energy LLC
30	Horse Hollow	Blackwell ISD	Application submitted on 5/25/2005 and accepted by school district on 12/14/05. Application states they will start production in April 2005. FAA date indicates 4/18/05 construction for some towers. Public Util Commission of Texas list as in service on Oct, 2005. Operation was subject to a wind nuisance lawsuit in April 2005 (prior to approval).  Application states they are only looking at TX counties

			<p>Source: Application #30  Source: Public Utility Commission: <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a>  Source: FAA data: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a>  Source: Lawsuit: Rankin v. FPL Energy LLC</p>
46	Plainview Bioenergy	Plainview ISD	<p>Company sold facility in November 2006, prior to applying for 313. Final application approved in December 2006 after construction had began.</p> <p>Source: Application #46  Source: Construction: <a href="http://www.businesswire.com/news/home/20061102005741/en/White-Energy-Acquires-100-Million-Gallon-Greenfield">http://www.businesswire.com/news/home/20061102005741/en/White-Energy-Acquires-100-Million-Gallon-Greenfield</a></p>
49	Wildorado Wind Farm	Vega ISD	<p>Application was submitted on September 2006 and approved by school district on 12/21/06. Company announced ground breaking April 21, 2006 (Earth Day) and FAA data shows wind towers completed on 12/7/06</p> <p>Source: Construction: <a href="https://tinyurl.com/ybp7vku3">https://tinyurl.com/ybp7vku3</a>  Source: Source: FAA data: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a></p>
50	Wildorado Wind Farm	Wildorado ISD	<p>Application was submitted on September 2006 and approved by school district on 12/21/06. Company announced ground breaking April 21, 2006 (Earth Day) and FAA data shows wind towers completed on 12/7/06</p> <p>Source: Construction: <a href="https://tinyurl.com/ybp7vku3">https://tinyurl.com/ybp7vku3</a>  Source: FAA data: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a></p>
54	JD Wind	Gruver ISD	<p>Original three phases for project built prior to acceptance of application. New owners applied for 313 three years after operation and for new expansions. Application documents why this project still legally qualifies for 313 agreement.</p> <p>Source: Application #54</p>
59	Roscoe Wind	Loraine ISD	<p>Application originally submitted on 2/2007 and was approved by school district on 12/12/2007. FAA data shows wind towers completed on 6/12/07</p> <p>Source: FAA data: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a></p>
60	Scurry Wind/Camp Springs	Hermleigh ISD	<p>Applications in 06/07, approved 10/16/07  Company announced commercial operations on 7/16/2007. FAA data shows wind towers completed on 1/4/2007.</p> <p>Source: Company announcement: <a href="https://tinyurl.com/y9sx5gen">https://tinyurl.com/y9sx5gen</a>  Source: FAA data: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a></p>
61	Scurry Wind/Camp	Scurry ISD	<p>Applications in 06/07, approved 10/16/07  Public Utility Commission of Texas list as in service on 7/16/2007. FAA</p>

	Springs		data shows wind towers completed on 1/4/2007.  Source: Public Utility Commission: <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a> Source: FAA data: <a href="https://ocaaa.faa.gov">https://ocaaa.faa.gov</a>
62	Air Liquide Large Industries	Brazosport ISD	Application originally submitted on 2/2007, amended application approved 12/18/07. Amended application states construction began on June 2007.  Source: Application #62
75	Barton Chapel Wind	Bryson ISD	Application submitted on 8/13/2007 and accepted by school district on 12/10/07. Public Utility Commission of Texas list as in service on 12/2005.  Source: PUC <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a>
84	Goat Wind	Sterling City ISD	Application submitted on 9/07/2007, amended application submitted 10/8/2007 and accepted by school district on 12/05/07. FAA data shows wind towers construction beginning 9/2007.  Source: FAA data: <a href="https://ocaaa.faa.gov">https://ocaaa.faa.gov</a>
87	Goad Wind	Robert Lee ISD	Application submitted on 9/18/2007, amended application submitted 10/22/2007 and accepted by school district on 12/05/07. FAA data shows wind towers construction beginning 9/2007.  Source: FAA data: <a href="https://ocaaa.faa.gov">https://ocaaa.faa.gov</a>
92	Wolf Wind	Muester ISD	Application states "The Applicant can relocate anywhere with prevailing wind conditions conducive to power generation, including multiple counties in Texas".  Source: Application #92
100	Ocotillo Windpower	Forson ISD	Agreement approved on 12/17/07. Formal testimony by company to Public Utility Commission of Texas on 3/2007 indicates substantial financial commitment. Permanent Met Tower began construction on 12/15/07. Application doesn't provide any argument about ability to relocate to other location.  Source: Application #100 Source: PUC <a href="https://tinyurl.com/yb6xbfyj">https://tinyurl.com/yb6xbfyj</a>
101	Capricorn Ridge Wind II	Robert Lee ISD	Application states considering multiple counties in Texas.  Source: Application #101
115	Pyron Wind Farm	Hermleight ISD	Application approved by school district on 11/08/08. Construction was listed as March 2008 in application and announced in summer 2008. FAA Data show wind towers completed on 7/30/08. Public Utility Commission of Texas list as in service on 11/ 2008.

			Source: Application #115 Source: FAA data: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a> Source: PUC <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a>
116	South Trent Wind	Trent ISD	Application approved by school district on 11/10/08. Public Utility Commission of Texas lists as in service on 7/2008  Source: PUC <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a>
117	Panther Creek Wind	Glasscock ISD	Approved by school district on 10/13/2008. Public Utility Commission of Texas list as in service on 7/2008.  Source: PUC <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a>
124	Panther Creek Wind	Forsa ISD	Approved by school district on 10/27/2008. Public Utility Commission of Texas list as in service on 7/2008.  Source: PUC <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a>
134	SandRidge Energy Inc	Fort Stockton ISD	Comptroller had not recommend approval due to company's inability to relocate in another district.  Source: <a href="https://www.sao.texas.gov/reports/main/15-009.pdf">https://www.sao.texas.gov/reports/main/15-009.pdf</a>
135	SandRidge Energy Inc	Fort Stockton ISD	Comptroller had not recommend approval due to company's inability to relocate in another district.  Source: <a href="https://www.sao.texas.gov/reports/main/15-009.pdf">https://www.sao.texas.gov/reports/main/15-009.pdf</a>
142	Notrees Windpower	Kermit ISD	Application approved by school district on 11/20/08. NY Times article has construction on 5/2008. Public Utility Commission of Texas PUC lists as in service 1/2009. Public Utility Commission of Texas PUC testimony indicates substantial financial commitment prior to application for 313.  Source: NYTimes: <a href="https://tinyurl.com/y8mjvn9f">https://tinyurl.com/y8mjvn9f</a> Source: PUC <a href="https://tinyurl.com/y6w8wvrn">https://tinyurl.com/y6w8wvrn</a> Source: PUC <a href="https://tinyurl.com/yb6xbfyj">https://tinyurl.com/yb6xbfyj</a>



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## Appendix

**Table A1: Validating Bargaining as a Measure of Incentive Effectiveness**

	Media Report		Expert Survey	
313 Necessary	-0.282*** (0.030)	-0.238*** (0.049)	-0.118*** (0.038)	-0.139** (0.053)
Constant	0.297*** (0.027)	0.239*** (0.049)	0.229*** (0.019)	0.281*** (0.050)
Industry Dummy	No	Yes	No	Yes
Post 2010 Dummy	No	No	No	Yes
Observations	34	34	82	82
R-squared	0.306	0.495	0.069	0.116