

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.

Acknowledgements: Thanks to Cam Powell for excellent research assistance. Thanks to the staff at the Texas Comptroller's Office for providing their published data in an Excel format. The Comptroller's Office also promptly fulfilled an open records request that included all of original 313 applications. Seminar participants at the University of Texas International Relations workshop provided feedback. Numerous economic development professionals provide background information and participated in an elite survey. Research was funded by the Laura and John Arnold Foundation. The report is an independent work product of the University of Texas at Austin. The views expressed are those of the author and do not necessarily represent those of the funder.

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 investment across borders, not only shaping economic outcomes, but affecting the political relations between firms and governments. 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-country 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 not only 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, managers interested in expanding or locating in a new district can obtain bids from multiple locations to increase their bargaining leverage.

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 actually 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.

In other work, Jensen and Maleksy (2016) argue that government officials also have the incentive to claim that government policy was effective in attracting firms. In a series of survey experiments, Jensen et al (2014) found that governments can take credit for investment in their district by linking the investment with a set of tax incentives. Thus, even for firms that would have freely located in a given location, politicians can provide state job credits, tax benefits, or cash grants to help claim that the government's actions, not simply geographic location, were pivotal for the investment decision. Hence, firms and government officials alike have the incentive to claim that firm-government negotiated policies were

responsible for the investment: firms receive additional benefits and government officials can claim that their policies were pivotal in attracting investment (Jensen et al 2014).

Such motivations to exaggerate the ability of firms to “walk away” from a district can taint government-provided information on location decisions. Thus, researchers have often resorted to indirect testing of the bargaining relationship between firms and governments, harnessing multivariate regression models or case studies to estimate the factors that shape the final outcomes. This is valuable, but the large number of possible factors that can shape these negotiations makes it nearly impossible to analyze how mobility shapes bargaining.

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 firms’ 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, I first compare the outcomes of these negotiations to news reports and data from elite interviews on the firms that were truly mobile and those that would have come to Texas irrespective of the tax benefits provided by the state. My data analysis shows a striking correlation between the outcome of firm-government agreements and perceived mobility of a select set of firms.

In locations where companies truly have numerous potential outside options, such as Samsung's decision to invest in Austin, the bargaining power is clearly in the firm's favor and the negotiation outcome swings towards the firm. In other investments, such as oil and gas extraction near the Gulf of Mexico, expansions of preexisting wind farms, or other investments that are perceived as having very limited potential investment locations, I find that the local governments have substantive bargaining leverage that translates into a better bargaining outcome for the location and a worse outcome for the firm. Firms voluntarily give back some of their state tax benefits to school districts in exchange for support in their application for incentives.

1. 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.¹ 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.

¹ 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).

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.² 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.

2. 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 year on these policies.³ 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.⁴ The flagship state incentive program—the Texas Enterprise Fund—is by far the largest state “deal closing fund” with a budget of \$295 million, making it two and a half times larger than the second biggest fund (Florida’s Quick Action Fund).⁵ The structure of this fund is similar to 38 other state deal closing funds as it provides discretionary incentives to firms. Thus, rather

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

³ 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.

⁴ For an overview of these programs see:

<https://texaswideopenforbusiness.com/sites/default/files/06/06/16/incentivessummary.pdf>

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

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:

- (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. Thus, this program is designed to provided 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 can vary by rural or urban areas. All investments that meet this requirement, as well as some additional requirements, can qualify for local property tax relief.

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, usually 25 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 windfarms in the program propose two jobs attached to hundreds of millions in investment.⁶

These very small 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.

⁶ 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 as being created by the program. (Legislative Budget Board 2011)

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.

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 in order to fund schools. These 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, rich school districts pay into the system while poorer school districts receive transfers.

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. 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.

The most controversial part of the legislation are the “supplemental payments” from firms to school districts to incentivize the district to execute 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 firms’ 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 districts' 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. 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, 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.

3. Bargaining Outcomes as a Proxy for Mobility

What do the supplemental payments look like for these early Chapter 313 investments? As noted in a TTARA (2017, 7), "School districts and their consultants typically target a recovery of 40 percent of the tax savings of the project through supplemental payments." Data on the 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 necessary projects of the agreements with walk away options 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. Controlling for other factors, supplemental payments are between 24 and 28 percentage points smaller for these four swing projects. 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.

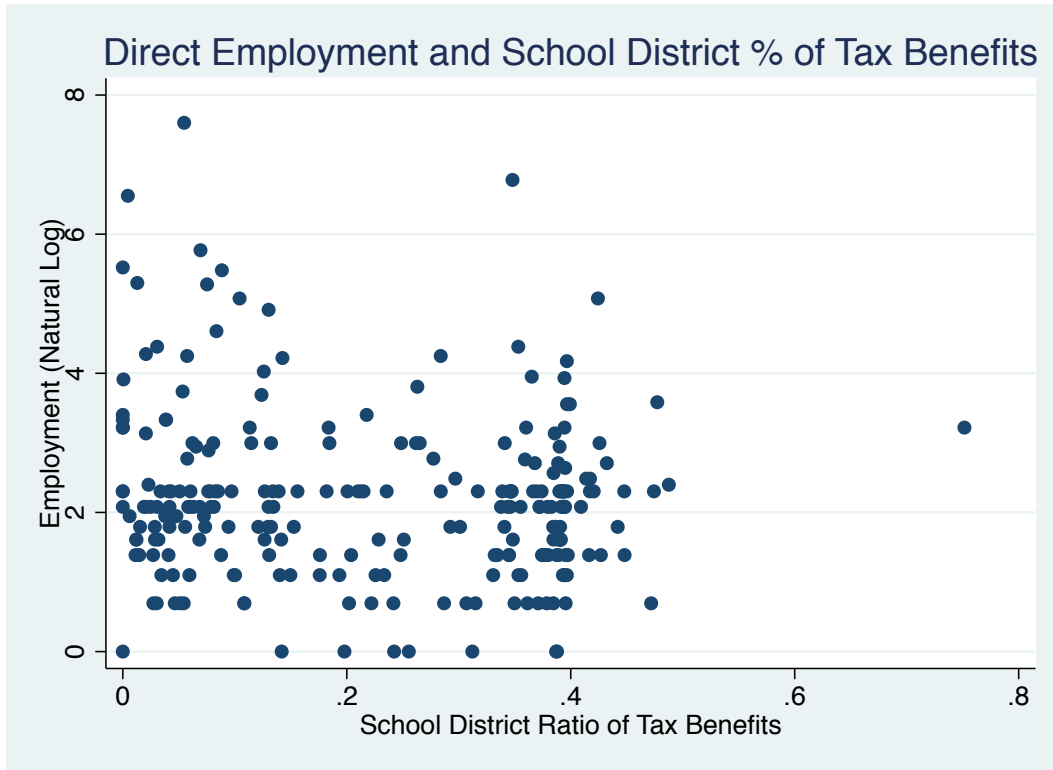
BASF’s original investment in Brazosport Independent School District only provided the district with 2% of the tax benefits. Without additional information on this negotiation it is difficult to identify the factors that led to such a small distribution of benefits for the school districts. But one telling 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 and data centers 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.

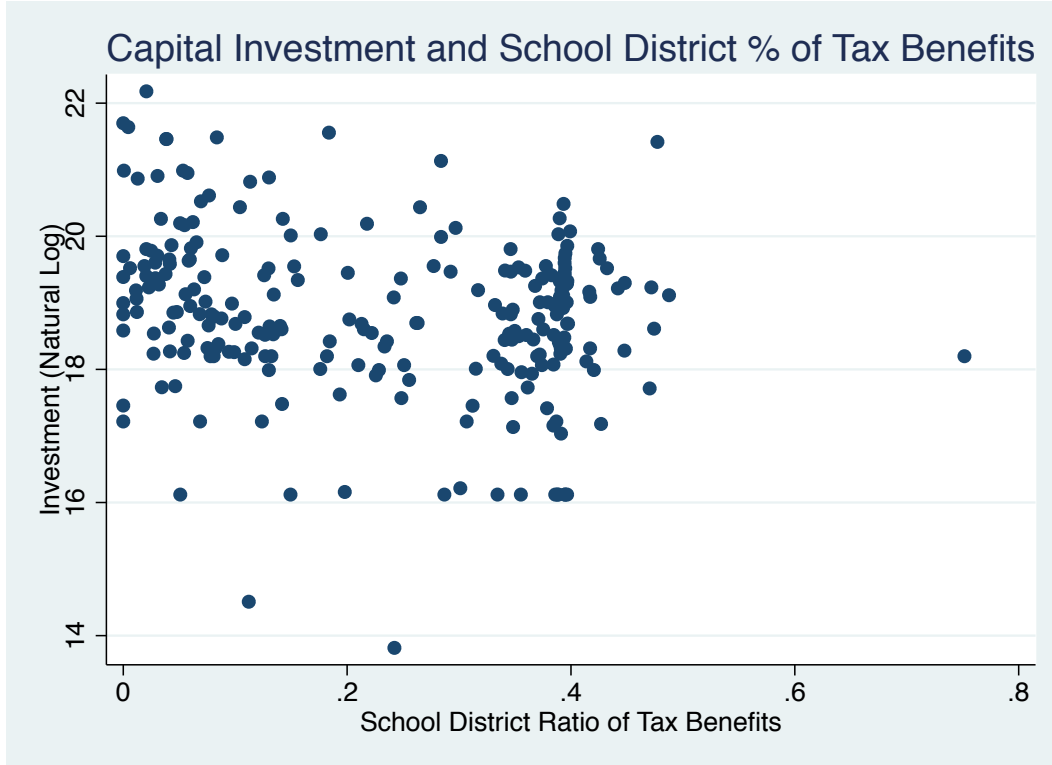
Figure 1



Another alternative theory, built upon the management literature on bargaining, suggests that larger investments will have greater bargaining power. 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 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.

4. 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.⁷

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 also require companies to explain why the incentives they seek are necessary. A few companies admit in this application that they are only considering a location inside of Texas⁸. 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 companies' 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 council 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,

⁷ <https://osf.io/qnw55/>

⁸ Sabina Petrochemicals in their initial application indicates Deer Park, Texas as the alternative location. This is reported in Sadasivam (2017).

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 sets of firms related to oil and gas account for an additional 26% of the program.⁹ With the exception of some large manufacturing investments, such as Samsung, Hewlett Packard, and Toyota, this program is largely used by capital intensive energy-related investments. This data from the application is merged with data from the Texas Comptroller's Office and the Texas Education Association on school district enrollments and the status of the districts in the state's education financing system.

This data from the application is merged with data from two other sources. First, the Comptroller's office made available its data on the program that it reports biannually in an electronic format. This data includes estimates of the company's tax benefit, information on supplemental payments, and other details on the program. Given that job creation isn't this program's only goal, this analysis focuses on the tax benefits and costs of this program.

The role of school districts in authorizing these incentives requires some additional data collection. This includes data from Texas Education Association 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

⁹ This includes petroleum refineries (NAICS 324110), petroleum manufacturing (NAICS 325110), and industrial gas manufacturing (NAICS 325120).

supplemental payments divided by the firms' 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 of 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). In Table 1, 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). The second column includes dummy variables for the industry and for projects after 2010, which placed a cap on the size of the supplemental payments based on the size of the school district. 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 elites 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).¹⁰

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.¹¹

In the second panel of Table 1, 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 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.

This 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.¹²

¹⁰ The University of Texas IRB determined that this was exempt research (IRB 2016-11-0008).

¹¹ 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.

¹² 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 rating 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

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.

Table 2: 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

5. Estimating the Effectiveness of the 313 Program

Experts have weighed in on a 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:

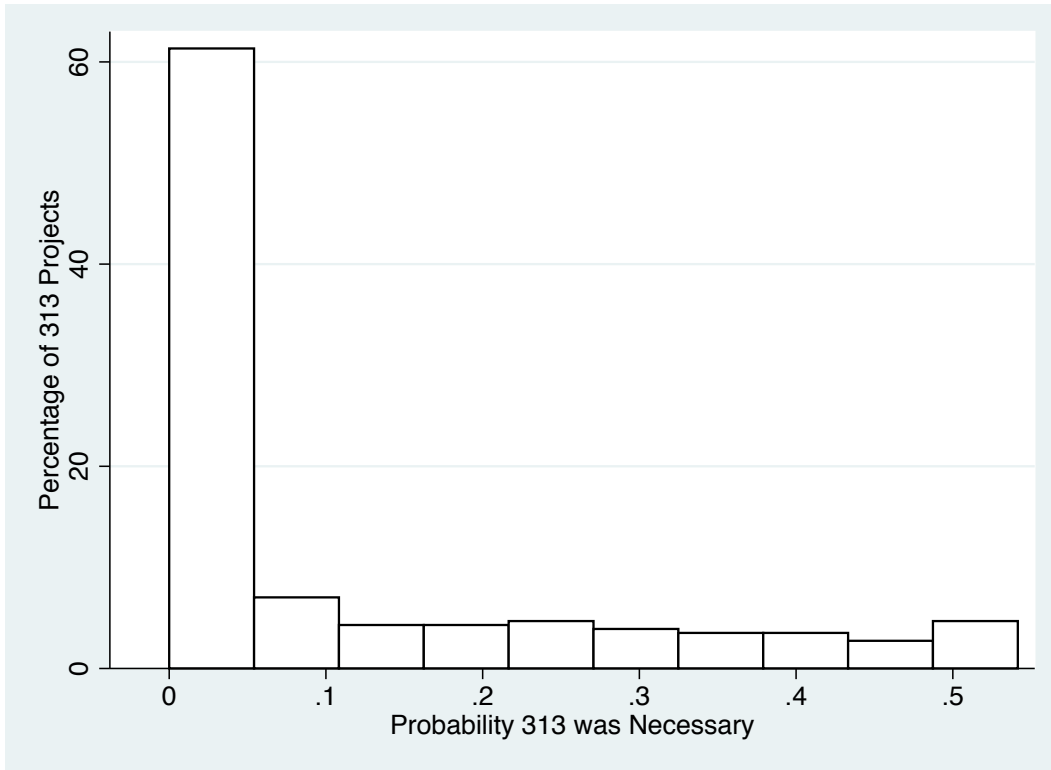
$$313 \text{ Necessary} = \alpha + \beta(\text{Supplemental Payment}) + \beta(\text{Post 2010 Dummy}) + \varepsilon$$

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.

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.

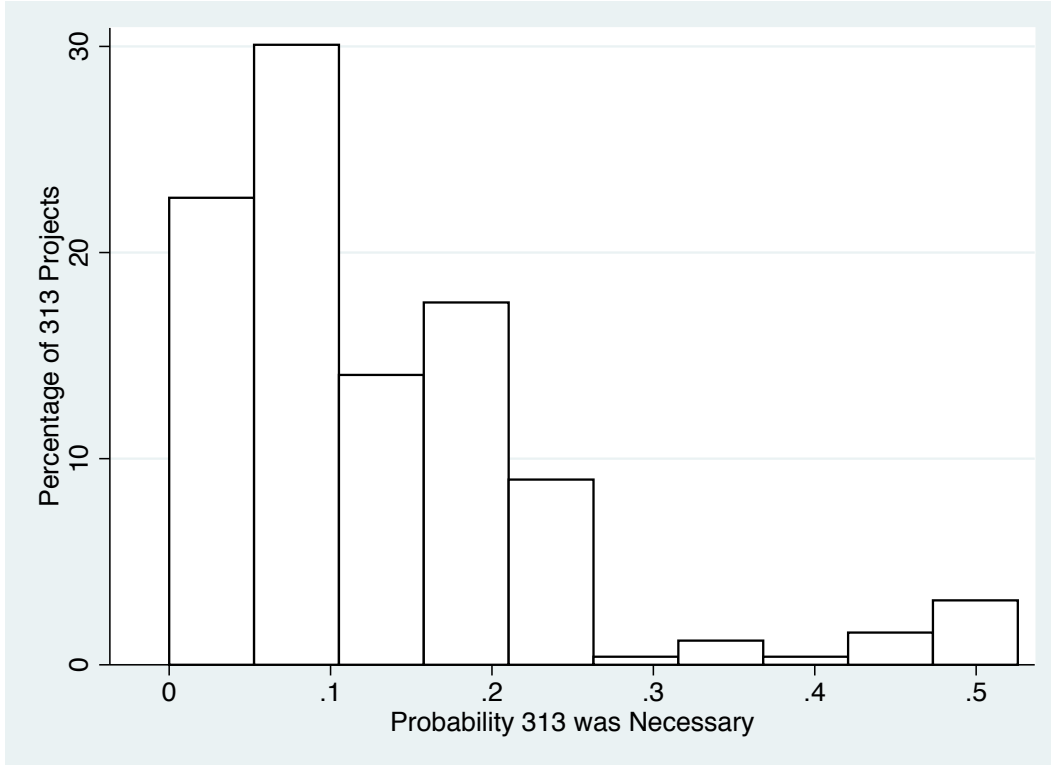
In Figure 1, I provided predicted probabilities for all 257 projects in the database using the first measure of 313 effectiveness from Table 1. Four out of 35 projects needed the 313 program to come to Texas. Thus, I estimated the logit model of 35 projects and used this model to generate predicted probabilities 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 for a total of 12 projects was the 313 program estimated as being more than 50%.

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 chemical investments on 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 of 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.

These estimates must be interpreted with caution for three reasons. First, for projects for which 313 was not necessary, the 313 program provides zero tax (or employment) benefits to the state. However, for those projects to which 313 was pivotal, this program can generate economic development spillovers through employee payroll taxes and spillovers to upstream and downstream companies. For these companies, my estimates understate the net benefit to the State of Texas. But, as noted, a very small percentage of companies needed Chapter 313 to relocate to Texas.

Second, the large number of wind projects participating in the program elicited much fewer responses from experts than many of the other projects. Experts expressed less confidence in their knowledge of these individual projects, but rather concern that additional factors such as federal incentives and state-funded energy distribution infrastructure were pivotal to the industry.

One additional note is in order. The majority of the projects in this database achieved additional state, local and sometimes federal incentives. My estimates only consider the costs and benefits of 313 to the state and ignore any additional costs from other incentive programs.

6. 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.

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.

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Appendix

