## EVALUATING FIRM-SPECIFIC LOCATION INCENTIVES: An Application to the Kansas PEAK Program

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# Ewing Marion KAUFFMAN Foundation

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#### **EXECUTIVE SUMMARY**

The use of financial incentives to attract and retain companies has become one of the most common economic development strategies of U.S. states and municipalities. Despite the widespread debate on the effectiveness of these programs, few systematic academic studies have examined how incentives affect job creation and local economic development. The result is that policymakers often lack objective data from which to draw conclusions about the benefits of these programs.

At a time in which state and municipal budgets are increasingly strained, new tools that allow policymakers to evaluate and understand the costs and benefits of incentive programs are needed. This paper attempts to provide policymakers with such a tool by exploring the impact of the Promoting Employment Across Kansas (PEAK) incentive program and other incentives. The paper is part of a larger project funded by the Ewing Marion Kauffman Foundation that seeks to examine the effects of incentives on job creation in the Kansas City region as part of a two-year study of incentive competition.

The paper's main finding is that, when comparing firms receiving PEAK incentives to a similar set of "control" firms, PEAK incentives recipients are statistically not more likely to generate new jobs than similar firms not receiving incentives. A secondary set of findings shows that firms relocating to Kansas, with or without incentives, do not experience job growth at higher rates than existing firms.

More important than the specific analysis of the PEAK program, this paper provides a model for the evaluation of incentive programs that could be applied to both state and municipal incentive programs. In the conclusion, I offer some suggestions for reforms of both the reporting of incentives and the analysis of the economic impact of incentives, and alternative economic development strategies.

#### INTRODUCTION

The use of financial incentives to attract and retain companies has become one of the most common economic development strategies of U.S. cities and municipalities. In a survey of U.S. municipalities, 95 percent of respondents indicated they utilized some form of fiscal incentives to attract firms, while every U.S. state has a menu of incentives to offer firms and many of these states have shifted towards offering fewer, but much larger "megadeals." While many states have increased their scrutiny of their incentive programs, only four states have integrated evaluation of incentives into the state policy process.

While these incentives come in many different forms, ranging from tax holidays, grants, and low-cost loans to infrastructure improvement, these government policies targeted at individual firms have come under increased scrutiny from academics, NGOs, and the media. The Kansas City metropolitan region, which straddles the Missouri-Kansas border, has become a symbol of the problems with incentive competition within the United States. *The New York Times* exposé on incentives devoted a full installment of the series to Kansas City.<sup>4</sup>

Both critics and supporters of incentive policies can find examples of firms receiving incentives that support their respective stories. Some incentives can be credited with luring investment or facilitating an expansion that generates direct jobs and tax revenues, which have much larger spillovers to the community. More common, however, are criticisms of incentive programs that illustrate the inefficiency and ineffectiveness of incentives as a job creation strategy.

This existing debate is an important starting point in documenting how and when incentives work or don't work, but fails to provide a more holistic picture of the costs and benefits of incentives. This working paper is part of a larger project funded by the Ewing Marion Kauffman Foundation that explores how incentives affect job creation in the Kansas City region, as part of a two-year study of incentive competition. This paper provides preliminary evidence about one of the most important Kansas incentive programs, Promoting Employment Across Kansas (PEAK). The main finding is that, when comparing firms receiving PEAK incentives to a similar set of "control" firms, firms that receive PEAK incentives are not statistically more likely to generate new jobs than similar firms not receiving incentives. A secondary finding is that attracting new investment, while clearly generating new jobs in the short run, has a limited impact on job creation. Firms that relocated to Kansas are no more dynamic in their job creation outcomes than already established firms, although they can shift existing jobs from an existing location to Kansas.

<sup>&</sup>lt;sup>1</sup> Jensen et al., 2014.

<sup>&</sup>lt;sup>2</sup> Mattera et al., 2013.

<sup>&</sup>lt;sup>3</sup> The Pew Center on the States 2012.

<sup>&</sup>lt;sup>4</sup> Mac William Bishop, "Border War: Kansas City," *New York Times*, December 1, 2012, http://www.nytimes.com/video/business/10000001832941/border-war.html.

In the conclusion, I offer some suggestions for reforms of both the reporting of incentives and the analysis of the economic impact of incentives, and alternative economic development strategies.

#### INCENTIVES: ARGUMENTS FOR AND AGAINST

There are two broad rationales for using firm-specific incentives.<sup>5</sup> First, proponents argue that the attraction of even a single major firm can serve as a catalyst for local economic development, having positive impacts on wages, property values, and ultimately tax revenue.<sup>6</sup> If a small incentive can swing the decision of a large firm, the benefits of these incentives far outweigh the costs.

A second rationale is the classic "market failure" concept that many of the benefits of a firm aren't simply captured by profits in the firm, but also have spillover effects in the community. For example, imagine two firms. One firm will create ten jobs but have few other spillover effects in the Kansas City area. A second firm will create ten direct jobs, and by sourcing from suppliers and using local distributors, that company will create an additional ten jobs. While both firms have the same payroll, sales, and ultimately profitability, the second firms is much more valuable to the region.

These firm-specific incentive programs are not without their critics. Markusen and Neese (2007) argue that incentive competition is a net loss. Easson (2004, 63), puts it bluntly:

According to the conventional wisdom, tax incentives for investment—in particular for foreign direct investment (FDI)—are not recommended. That is the view held almost universally by theorists and by the international bodies that advise on tax matters. Tax incentives are bad in theory and bad in practice.

Without dwelling on the many details that critics have highlighted, we can briefly note the main criticisms. First, much of the literature on incentives, and tax policy in general, finds that incentives are rarely the main factor for shaping investment location decisions, or in the decision for expansion. Incentives often are what firms look for to sweeten the deal once they have made a decision. Thus, they are not especially effective in luring new firms to a region.

Second, they are often excessively costly relative to the number of jobs they create. Even if we take the amount of jobs created on the face value, in many cases the dollar amount per job doesn't make sense. More problematic is that most studies of incentives find that a large percentage (often in excess of 75 percent) of the jobs "created" by incentives were going to be created anyway. Thus, the "redundancy" rates of incentives

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<sup>&</sup>lt;sup>5</sup> See for a more detailed discussion of local economic development polices see Klein and Moretti 2013.

<sup>&</sup>lt;sup>6</sup> Greenstone and Moretti (2003).

<sup>&</sup>lt;sup>7</sup> One example is Bobonis and Shatz (2007). See Klemm and Van Parys (2012) for a global study of incentives.

make them three, four, or five times more costly than a simple dollars per job calculation.

Third, and perhaps most obvious to observers of the 'border war' in Kansas City, is that incentives can distort economic decisions. The irony is that the few times when incentives are effective, they could be for simply maximizing government subsidies and not for efficiency or market-seeking motivations. The story of Applebee's jumping back and forth across the Kansas and Missouri border is a striking example. These incentives affected the location decision of the company, but it is difficult to make that case that this was an economically efficient use of taxpayer money.

Taking stock of this literature, there are a number of theoretical positives and negatives of incentives, yet most of the literature on incentives mainly just examines the firms that received incentives. In this paper, I propose an alternative methodology.

#### **EVALUATION OF THE EFFECTIVENESS OF INCENTIVE PROGRAMS**

Evaluations of incentive programs are notoriously difficult. The first problem is data limitations. Many countries, states, and cities provide very few details about their incentive programs, and even less detail on the companies that received incentives. While this lack of transparency has been well documented in other studies, this relates to the second issue: A proper evaluation of an incentive program requires the generation of a counterfactual. What would the company have done without an incentive? Would jobs, sales, and profitability be less if the company didn't receive the incentive? Would the company have moved to another location, or possibly gone out of business?

These are difficult questions to answer, and most of the information required is in the hands of companies seeking incentives. Thus, this information asymmetry (only the company knows if the incentive would be necessary) can lead governments to provide excessive incentives to firms that would have undertaken the same activity with or without government support. To properly evaluate an incentive program, then, we cannot just look at a firm that received an incentive tied to a new investment or expansion. Of course we will see a correlation between new capital investment and more jobs with this incentive program. But what inferences can we draw on how much of this outcome we should attribute to the incentive program?<sup>8</sup>

Even a study of a company over time can lead to erroneous attribution of positive outcomes to incentives. For example, imagine a company that is in business for twenty years and engaged in three expansions of employment. In Year 1, the company started with ten jobs; in Year 5, an expansion of an additional five jobs (fifteen jobs in total); and

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<sup>&</sup>lt;sup>8</sup> To give an illustrative example, imagine that a state creates a college scholarship program. Obviously, pointing out that the students with the scholarship are enrolled in college doesn't prove that the scholarship helped the student go to college. If the scholarships are given to the best and brightest students, showing that scholarship students perform better than nonscholarship students again fails to show the added value of the college scholarship to an already talented student.

in Year 10, another expansion of five jobs (twenty jobs in total). If the company received an incentive in either or both years, most statistical models would find a positive relationship between incentives and job creation.

But the problem is that if companies only apply for and receive incentives in the years they already were considering expanding, it is highly like we are really erroneously concluding that incentives help generate jobs. This is akin to claiming that hospitals kill people, because many more people die in hospitals. Companies that receive incentives for job creation create some jobs, but this does not mean that the incentives were effective in creating these jobs.

While there are few clear fixes to this problem of causal inference, in this working paper I outline a relatively comprehensive database of firm establishments that gives us some leverage on this problem. While we know that, as mentioned above, companies that already are considering expanding or relocating are more likely to apply for and receive incentives, we can use this rich dataset to perform "matching methods" to attempt to compare firms that received incentives with other very similar firms. Thus, we can explore if the firms that received incentives perform better than their peer groups after receiving incentives. In the next section I give an overview of the Kansas PEAK Program and the establishment level dataset that will be used for matching PEAK firms with similar firms in Kansas.

### THE KANSAS PEAK PROGRAM AND THE NATIONAL ESTABLISHMENT TIME-SERIES DATA

The Promoting Employment Across Kansas (PEAK) program is an incentive program enacted in 2009 that has many similarities to other state programs. PEAK provides an incentive (retaining up to 95 percent of the payroll withholding taxes of eligible employees) to encourage firms to relocate, expand, or stay in Kansas. This program, administered by the Kansas Department of Commerce and the Kansas Department of Revenue, was one of two programs evaluated as part of the Kansas Post Audit Committee. The first part of their audit provides a detailed overview of this program.

While there are clear eligibility conditions, such as paying above the county median wage for the establishment and provisions for enforcement, this program has not been without criticism. Part 1 of the Kansas Legislative Audit identifies problems with the administration of the program and company self-reporting that was never verified. In short, the existing data on Kansas incentive programs hampers both the functioning and evaluation of this program. The Legislative Division of Post Audit (2013, 11–12) highlights the lack of actual, as oppose to estimated results, is a major constraint on the evaluation of this program.

While there is no silver bullet to overcoming the lack of information collected on companies receiving incentives, existing data on the employment and sales of PEAK companies relative to other establishments in Kansas is available. To assess the impact

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<sup>&</sup>lt;sup>9</sup> Legislative Division of Post Audit (2013).

of PEAK incentives on individual firms requires fine-grained establishment-level data. This data, created by Walls & Associates using Dun & Bradstreet data provides one of the most comprehensive databases of establishment-level data. This National Establishment Time Series (NETS) data, in contrast to many other sources of firm data, disaggregates each establishment of a firm. This is critical since most incentive programs provide funding for a single establishment, for example, the single location of a company that has multiple Kansas locations.

This data has been used by other researchers and compared to existing databases. The most comprehensive analysis can be found in Neumark, Wall, and Zhang (2011). In their study, they examined the correlations in employment numbers between the NETS data and U.S. Current Population Survey and Current Employment Statistics, which yielded an overall correlation of 0.99 and 0.95 respectively, although the NETS data generally had higher estimates of employment and lower levels of employment change.<sup>10</sup>

The most comprehensive data starts in 1992, when Dun & Bradstreet were allowed to purchase Yellow Pages data to directly call individual firms. This massive data collection effort has resulted in a database of millions of firms. This data includes detailed information on 500,000 firms located in Kansas.

Using public records requests, documentation from the Kansas Legislative Audit, and news media sources, we linked seventy-two PEAK incentive recipients to the NETS data. As outlined in the Kansas Legislative Audit, between 2009 and 2013, 117 companies had signed PEAK agreements, although only ninety-four companies were provided incentives and were active during the review. Thus, this working paper captures the majority of the PEAK incentive recipients.

Comparing PEAK firms to all 500,000 establishments in the NETS data would be an unfair comparison. PEAK firms tend to be much larger in both employment and sales, and may be concentrated in different sectors. Thus, central to evaluating this program is finding the correct comparison set of firms.

Luckily, there is a large amount of literature on the use of "matching methods" to analytically compare treatment firms (firms getting PEAK incentives) with a control group (firms that are similar to PEAK firms but did not receive incentives). I utilize the most well known of these methodologies: propensity score matching, using the five "nearest neighbors." These are not necessarily geographic neighbors. Rather, they are firms that looked very similar to the firms receiving PEAK incentives. To match these firms, I use a set of observational variables including the firm's previous employment, whether or not the firm is a subsidiary of a parent company, and the sector of company (three-digit SIC code).

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<sup>&</sup>lt;sup>10</sup> The NETS higher employment number was attributed to better coverage of small firms in the NETS database. The lower rates of employment growth were attributed to the large number of employment estimates in the NETS database.

This comparison allows us to simply compare the total employment of the firm in 2012, the most recent year of complete NETS data, between PEAK firms and similar firms. In table 1, I present a comparison of these firms using the raw 2012 employment data.

Table 1. Comparing firms receiving PEAK incentives to other firms in Kansas using propensity score matching

		Difference	PEAK	Control	S.E.	T-stat
Model 1	Unmatched	70.80***	93.55	22.74	35.34	2.00
(Baseline)	Matched	-5.23	93.55	98.77	30.22	-0.17
Model 2	Unmatched	67.19	93.55	26.52	40.39	1.66
(Industry)	Matched	-45.79	93.55	139.33	42.50	-1.08

*Note:* The dependent variable in the first stage is the total establishment employment in 2012. The first row for each model presents differences between firms receiving PEAK incentives and those that do not. The second row presents the average treatment effect from propensity score matching using the five nearest neighbors.

In the first row, I present the total employment comparing PEAK and non-PEAK firms. PEAK firms have on average seventy more employees than non-PEAK firms, which is statistically different from zero. But this finding largely is driven by the PEAK firms already being larger prior to receiving a grant and different on a number of dimensions. In the second row we compare each PEAK firm to the five "nearest neighbor" firms, or firms in the dataset that, in 2006, looked similar to the PEAK firms in terms of employment and whether or not they are a subsidiary of parent firm. PEAK firms employ 5.23 fewer workers.

In the first row of Model 2, I again present the same comparison between PEAK and non-PEAK firms. But in the matching, I now include the three-digit SIC code to help identify the five nearest neighbors. To be clear, now we are comparing firms that received PEAK incentives to firms that are of similar size, of the same subsidiary or nonsubsidiary status, and in the same industry. These estimates are even more striking. PEAK firms on average employ 45.79 *fewer* workers than non-PEAK firms. For comparison, my public records request on the PEAK program reveal that this same set of firms used in Model 1 proposed creating an average of 124 jobs and received an estimated benefit of just under \$2.53 million.

These estimates, while striking, must be put into context. While forty-five jobs is indeed a large difference, this difference isn't statistically significant. Single outliers can affect these estimates, as can the decision to compare only firms that existed prior to 2006 or some later date. To test the robustness of these results, I estimated the impact of PEAK incentives using alternative codings and an alternative matching method. The result on the ineffectiveness of PEAK incentives is consistent across alternative models.

<sup>\*\*\*</sup> p<0.01, \*\* p<0.05, \* p<0.1.

#### TARGETING FIRMS FOR ECONOMIC DEVELOPMENT

The previous section explores the relationship between the Kansas PEAK program and job creation in Kansas. I find no evidence that PEAK recipients are more likely to generate new jobs. This isn't necessarily a criticism specific to the PEAK program. The bigger question is: how effective is the targeting of individual firms more broadly? To address this question, in table 2 I include two alternative tests. First, using a database of all incentives at the state and municipal levels from 2010–12, I explore if firms receiving other types of incentives are more likely to generate jobs. Second, using the NETS database, I examine if firms that locate to Kansas, with or without incentives, are more likely to generate jobs.

Table 2. Comparing firms' incentives and relocations to other firms in Kansas using propensity score matching

		Average				
		Difference	Treatment	Control	S.E.	T-stat
Model 3	Unmatched	415.43***	445.48	30.05	69.64	5.97
(Incentives)	Matched	-106.52	147.55	254.06	150.63	-0.71
Model 4	Unmatched	35.30***	52.56	17.26	1.69	20.95
(Relocation)	Matched	-7.84	52.43	60.27	17.00	-0.46

*Note:* The dependent variable in the first stage is the total establishment employment in 2012. The first row for Model 3 presents differences between firms receiving incentives (from ICAincentives) and those that are not. The second row presents the average treatment effect from propensity score matching using the five nearest neighbors. The first row for Model 4 presents differences between firms relocating to Kansas and those that are not. The second row presents the average treatment effect from propensity score matching using the five nearest neighbors.

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

In Model 3, I use the same method of propensity scores matching, including controls for the sector of the company, but this time using data from ICAincentives, a for-profit incentive tracking company, on incentives provided to Kansas firms from 2010–12. The ICAincentives database draws on a number of resources, including news media reports, which allows them to capture local incentives along with major state programs. In Model 4, I explore the job creation of firms that relocated to Kansas at some point during our sample window (1992–2013) and examine if these companies were more likely to create jobs from 2006–12.

In both models, while firms that receive incentives and those that relocate have substantially more employees than other firms (the first rows of unmatched data), this is largely due to these firms being larger than other firms in the area. When we perform the same nearest neighbor matching, we see that firms receiving incentives and those that relocate to Kansas have slightly worse records in generating jobs.

These results must be carefully interpreted. This matching was done to complement the previous results, using the same matching variables for matching and examining the

same time window. But a more proper analysis would be very careful to explore the timing of when firms received incentives and when they relocated to Kansas. The main point is that this broader incentive data, and coding firms for relocations, looks similar to the results on the Kansas PEAK program.

#### FIRM RELOCATIONS AND JOB CREATION

Thus far, my analysis has focused on job creation within a firm. The results indicate that the companies that relocate to Kansas, with or without incentives, are no more or less likely to generate jobs than similar companies in the area. Yet this doesn't mean that these companies won't create new jobs when they relocate to Kansas.

For example, according to data presented in the Kansas Audit, fifty-four incentives were provided to new establishments and firms expanding existing establishments. While these firms are not more likely generate more jobs in the long run than existing Kansas companies, companies relocating to Kansas can provide one-time job creation as jobs are shifted to Kansas from another state. In our data, thirty-four PEAK incentives were provided to companies relocating to Kansas.

Unfortunately, it is difficult to evaluate how many of these PEAK-supported relocations generated new jobs in Kansas since these relocations may have happened even without a PEAK incentive, and some were moves across the state line from Missouri. Can we associate PEAK incentives with job creation?

This is a difficult question and would require detailed data of individual employees. What the data does tell us is that the vast majority of PEAK incentives that went to relocations were for firms previously located in Missouri (twenty-seven out of thirty-four relocations).

This bias toward attracting Missouri firms contrasts with the NETS data. Of the over 45,000 firms in the dataset that relocated, almost 35,000 relocated from another location in Kansas. While 79.4 percent of PEAK incentives provided to relocating firms were targeted at Missouri firms, Missouri firms only represent 30.4 percent of the out of state relocating firms in the NETS data. Thus, while many firms relocate to Kansas from large states like Texas (831 establishments) and California (696 establishments), firms from these states very rarely receive a PEAK incentive. This simple descriptive data suggests that a large number of PEAK incentives firms *may* simply be shifting jobs across the Missouri-Kansas border.

Unfortunately there isn't an obvious statistical fix for this problem unless we can track individual workers within a company. Thus, the only recommendation is to take care in interpreting job creation for companies that relocate within a geographic distance that is easily commutable for existing workers. The NETS database provides latitude and longitude information that would allow for further exploration of these moves.

#### **DISCUSSION AND CONCLUSIONS**

This paper outlines a standard research methodology that can be applied to the evaluation of the effectiveness of economic development programs. Central to this evaluation is finding a comparison group of firms to be used as a "control group."

The accurate assessment of any evaluable program is enhanced with more detailed data on the incentive programs, the recipients, and other firms not receiving incentives. One simple policy recommendation is to aid the evaluation of incentive programs through better management and sharing of data about incentive programs. Basic information about the companies receiving incentives should include identifying information beyond the company name. For example, if there are multiple establishments, the establishment receiving the grant (and the address of the establishment) should be provided.

A second, and perhaps less obvious, point is that the ideal comparison for any incentive programs would be to have information not only on incentives granted, but also on incentives not granted. Some states with discretionary funds for relocation, such as the Texas Enterprise Fund, have a large number of applicants that were not given incentives. These rejected applicant company names can (and were by the author) accessed through a public records request. In contrast, the State of Arkansas did not maintain data on companies that were rejected by their discretionary incentives programs.

One simple solution is for discretionary, and even nondiscretionary, incentives is to make the applications for PEAK grants available through public records requests. This will provide much of the background information necessary for the tracking of firms receiving incentives, and any information on firms that were rejected.

Also, the most important component of this evaluation is the use of other non-incentive firms in an area as a control group. Thus, for a proper evaluation of incentive programs we must not only focus on the firms receiving incentives. We need to collect broader information about similar firms in the area to make a proper comparison. This can be done after the fact for program evaluation, or prior to implementation by using existing firms as a benchmark to evaluate an incentive program.

Finally, we need to improve the overall method to collect data of firms receiving state and local incentives. Those firms are supposed to report some information to respective agencies, but collecting such information retroactively is notoriously difficult even for agencies, as companies naturally have the tendency not to disclose their internal information. There has to be an explicit agreement at the beginning of receiving incentives about which company information has to be reported to agencies.

My preliminary findings on the Kansas PEAK program, and Kansas incentive programs more generally, is that there is no concrete evidence that they are effective in generating jobs in Kansas. Yet a more comprehensive evaluation requires more

information on these incentives programs. Future research will collect more fine-grained data on the PEAK program and expand this analysis to other programs in Kansas and Missouri.

#### REFERENCES

Bobonis, Gustavo J., and Howard J. Shatz. 2007. "Agglomeration, Adjustment, and State Policies in the Location of Foreign Direct Investment in the United States." *The Review of Economics and Statistics* 89(1): 30–43.

Buettner, Thiess, and Martin Ruf. 2007. "Tax Incentives and the Location of FDI: Evidence from a Panel of German Multinationals." *International Tax and Public Finance* 14(2): 151–64.

Easson, Alex. 2004. *Tax Incentives for Foreign Direct Investment*. The Hague: Kluwer Law International. ICAincentives.com. 2013. The Only Global Incentive Deal Database. http://www.icaincentives.com/.

International City/County Management Association and National League of Cities. 2009. *Economic Development 2009 Datasets*. <a href="http://bookstore.icma.org/Data\_Sets\_C42.cfm">http://bookstore.icma.org/Data\_Sets\_C42.cfm</a>.

Jensen, Nathan M., Edmund Malesky, and Matthew Walsh. 2014. Competing for global capital or local voters? The politics of business location incentives. Working Paper, Washington University in St. Louis.

Klein, Patrick, and Enrico Moretti. 2013. People, places and public policy: some simple welfare economics of local economic development programs. National Bureau of Economic Research Working Paper 19659.

Klemm, Alexander and Stefan Van Parys. 2012. Empirical evidence on the effects of tax incentives. *International Tax and Public Finance* 19 (3): 393-423.

Legislative Division of Post Audit. 2013. Performance audit report. Economic development: determining which economic development tools are most important and effective in promoting job creation and economic growth in Kansas. Part 1.

Neumark, David, and Jed Kolko. 2010. "Do Enterprise Zones Create Jobs? Evidence from California's Enterprise Zone Program." *Journal of Urban Economics* 68: 1–19.

Neumark, David, Brandon Wall, and Junfu Zhang. 2011. "Do Small Businesses Create More Jobs? New Evidence from the National Establishment Time Series." *Review of Economics and Statistics* 93(1): 16–29.

The Pew Center on the States. 2012. Evidence Counts: Evaluating State Tax Incentives for Job Growth.