

Economic Assessment of the Oklahoma Manufacturer's  
**Ad Valorem Tax Exemption**

**STATE CHAMBER**  
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RESEARCH FOUNDATION

# Economic Assessment of the Oklahoma Manufacturer's Ad Valorem Tax Exemption



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**RegionTrack, Inc.** ([regiontrack.com](http://regiontrack.com)) is an Oklahoma City-based economic research firm specializing in regional economic forecasting and analysis. Principal authors of the report are RegionTrack economists Mark C. Snead, Ph.D. and Amy A. Jones, M.A.

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# Economics of the Oklahoma Manufacturer's Tax Exemption

## I. Executive Summary

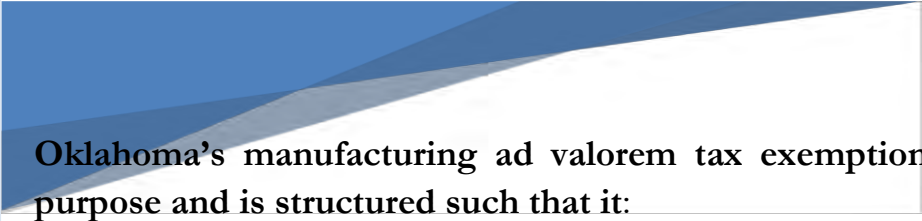
As an aid to policymakers, this report examines the economic role of the Oklahoma manufacturer's ad valorem tax exemption. While the exemption has been in place for nearly three decades, the economic contribution of the program has received only limited evaluation. This report documents the structure and usage of the exemption in recent years and develops a comprehensive framework for estimating the economic contribution of the exemption to the state economy. The direct economic outcomes generated by manufacturers receiving the exemption are estimated and described in detail. Estimates of spillover effects to the broader state economy are then formed using two modeling approaches. **The results suggest that the economic activity generated by the exemption produces a range of significant direct and spillover economic benefits to the state and that these benefits far outweigh any potential direct costs of the exemption.**

## General Findings

1. **Qualifying firms have received \$735 million in total ad valorem tax exemptions since the inception of the program in 1986.** Exemptions have averaged \$26.2 million annually over the life of the program, and \$43.6 million annually in the most recent five years ended in 2013. Exemptions reached a single-year high of \$64.4 million in 2013.
2. **The ad valorem exemption has contributed to substantial new investment spending on structures and equipment within the state.** In 2013, 440 exemptions representing \$6.1 billion in assets were approved for reimbursement. This investment represents 6.8% of the total commercial real and personal property in Oklahoma at cash value. An estimated 65% of the new investment expenditures covered under the program are made within the state.
3. **The exemption has significantly aided the state's capital-intensive manufacturing sector to fund new investment.** Manufacturers alone maintained a total of \$2.39 billion in total assets tied to active exemptions in 2013.
4. **By value, exemptions awarded to manufacturers have remained in a narrow range between \$23 and \$29 million annually the past decade.** The exemption is being used by both small and large manufacturers. Many firms have used the exemption repeatedly over the past several decades.
5. **The exemption is widely used and distributed fairly evenly across the state over time.** Metropolitan areas are the largest users but have generally received a less than proportional share of the exemption the past decade based on several economic measures.
6. **Industries receiving exemptions in recent years are closely aligned with the state's overall economic development strategy** of pursuing targeted economic ecosystems in energy, aerospace and defense, and agriculture and biosciences.
7. **The state's Ad Valorem Reimbursement Fund has required annual appropriations each year since FY2003 in order to make reimbursements to counties granting the exemption.** The average supplemental appropriation to the Fund between FY2003 and FY2013 averaged \$12.85 million (including two years with no appropriation).

8. **The chain of economic outcomes in the state economy created by the exemption is complex and multi-faceted.** These outcomes include very large upfront investments in structures and equipment; substantial added output in the manufacturing sector using the new investments; reimbursements from the state to counties; added tax revenue to counties as firms leave the exemption program; and added local government spending.
9. **The two primary benefits to the state economy from the incentive are new upfront capital investments in structures and equipment and added annual output at firms using this new capital.** For manufacturers receiving first-year exemptions in 2013, new investment totaled \$453 million, with \$298 million representing in-state purchases. Added output at these manufacturing firms totaled an estimated \$1.18 billion in year 1 of the exemption. The output is 80% exports.
10. **Estimates suggest that each dollar in ad valorem tax exemption supports an average of \$225 in new output in the state economy.** It is this substantial increase in output generated using new structures and equipment that produces the largest direct economic impact on the state economy.
11. **The exemption is believed to offer significant net positive economic benefits to both the counties offering them and the firms receiving them.** Firms avoid substantial ad valorem taxes and face few costs beyond the application process. Counties receive immediate reimbursement from the state and added tax payments from firms as they leave the program. This produces added local spending, primarily for public education. The only costs to the counties are any added public expenditures needed to service the new investment.
12. **Model-based estimates suggest that highly positive spillover benefits accrue to the state from the upfront investment made by recipient firms in structures and equipment.** Estimates using both an input-output model and a computable general equilibrium (CGE) model of Oklahoma suggest that the \$297 million in upfront investment made by firms receiving the exemption in 2009 produced total estimated benefits of \$480-523 million in added output; \$177-192 million in added labor income; and 3,874-4,092 new jobs. Added state and local tax revenue generated from upfront investments is estimated to total \$17.3-35.3 million.
13. **The largest spillover benefits are derived from added production of goods and services using new capital investments tied to the exemption.** Model-based estimates for manufacturers receiving the exemption in 2009 suggest that added output of approximately \$1 billion annually produces estimated statewide benefits (in each year of the exemption) of \$1.46-1.57 billion in added output; \$311-374 million in added labor income; and 5,737-7,992 new jobs. Added state and local tax revenue generated from upfront investments is estimated to total \$31.9-67.9 million annually. Over five years, estimates of total tax revenue generated range from \$159.5 to 339.5 million.
14. **The exemption fares extremely well from an expected cost recovery viewpoint.** Estimates for the 2009 group of manufacturers suggest that the exemption will fully pay for itself if only 5-10% of the new capital investment associated with the 2009 incentive is traced directly to the role played by the exemption.
15. **The economic impacts will likely spread well beyond the counties where the exemptions are concentrated.** The upfront investment impacts will be felt in those counties where

construction firms and durable goods manufacturers are located. The impacts from added annual output will be spread to areas of the state where suppliers to these firms are located.



**Oklahoma's manufacturing ad valorem tax exemption has a clearly defined purpose and is structured such that it:**

1. Focuses on increasing capital investment and wage growth in the state;
2. Favors industries that are consistent with the state's strategic plan – manufacturing, research and development, aviation and aerospace, wind power, data centers, and distribution centers;
3. Encourages economic development across all regions of the state;
4. Distributes the cost burden of the exemption statewide;
5. Applies a higher salary threshold for more highly populated counties;
6. Encourages the reemployment of unoccupied facilities suitable for manufacturing;
7. Encourages employer provision of basic health benefits;
8. Encourages both new and existing employers to expand within the state; and
9. Is equally available to small and large firms given its modest minimum investment and payroll gain.

## II. Introduction – Oklahoma Manufacturing Ad Valorem Tax Exemption

Oklahoma law provides for various types of property tax relief, one of the most significant being a constitutional amendment approved by the people in 1985 allowing a five-year exemption from ad valorem taxes for new or expanded manufacturing facilities.<sup>1</sup> The exemption has undergone numerous changes since its passage, and a complex set of rules has evolved to administer the program.

### Constitutional Amendment - Article X, Section 6B

The manufacturing ad valorem tax exemption was initiated through state question 588 and approved by a vote of the people in April 1985. The exemption is codified in the Oklahoma constitution as Article 10 Section 6B (*see Box 1*). Under the amendment, 'qualified manufacturing concerns' within any county of the state may be granted an exemption from any ad valorem taxes levied upon new, expanded, or acquired 'manufacturing facilities' for a period of 5 years.

The Legislature was authorized to define 'manufacturing facility' for purposes of the ad valorem tax exemption "in order to promote full employment of labor resources within the state." The Legislature was also given specific authority to enact laws to carry out the provisions of the amendment and to provide for

#### **Box 1. Oklahoma Constitution, Article X Section 6B**

##### **Qualifying manufacturing concern - Ad valorem tax exemption**

For the purpose of inducing any manufacturing concern to locate or expand manufacturing facilities within any county of this state, a qualifying manufacturing concern shall be exempt from the levy of any ad valorem taxes upon new, expanded or acquired manufacturing facilities for a period of five (5) years.

For purposes of this section, a "qualifying manufacturing concern" means a concern that:

1. Is not engaged in business in this state or does not have property subject to ad valorem tax in this state and constructs a manufacturing facility in this state or acquires an existing facility that has been unoccupied for a period of twelve (12) months prior to acquisition; or
2. Is engaged in business in this state or has property subject to ad valorem tax in this state and constructs a manufacturing facility in this state at a different location from present facilities and continues to operate all of its facilities or acquires an existing facility that has been unoccupied for a period of twelve (12) months prior to acquisition and continues to operate all of its facilities.

The exemption allowed by this section shall apply to expansions of existing facilities. Provided, however that any exemption shall be limited to the increase in ad valorem taxes directly attributable to the expansion.

The Legislature shall define the term "manufacturing facility" for purposes of the ad valorem tax exemption provided by this section in order to promote full employment of labor resources within the state; provided, however, that a manufacturing facility that qualifies for the ad valorem tax exemption provided by this section, pursuant to the definition of "manufacturing facility" then applicable, shall be eligible for the exemption without regard to subsequent changes in the definition of the term "manufacturing facility".

The Legislature shall enact laws to carry out the provisions of this section and to provide for the reimbursement to common schools, county governments, cities and towns, emergency medical services districts, vocational-technical schools, junior colleges, county health departments and libraries for revenues lost to such entities as a result of the exemption provided by this section.

The assessed valuation of property exempt from taxation by virtue of this section shall be added to the assessed valuation of taxable property in computing the limit on indebtedness of political subdivisions contained in Section 26 of this article.



reimbursement of ad valorem tax revenue to local taxing entities located within the counties where these facilities are located.

## **Current Structure and Changes to the Exemption**

The constitutional amendment creating the exemption did not specify a mechanism for either implementing the program or evaluating its effectiveness. It stated a simple purpose of “inducing any manufacturing concern to locate or expand manufacturing facilities within any county of this state.” The definition of “manufacturing facilities” has changed numerous times over the years through legislative efforts. Other rules have been added to shape the applicant pool, manage reimbursements, and retain or assist individual firms facing financial distress or at risk of leaving the state and that might have an outsized economic impact on the state economy. The full rules currently governing the exemption are found in Title 68, Section 2902 of the Oklahoma statutes.<sup>2</sup>

***Qualified Manufacturing Concern.*** The definition of a qualified manufacturing concern generally includes manufacturing facilities engaged in the mechanical or chemical transformation of materials or substances into new products. To qualify, **establishments must incur the investment cost of \$250,000 or more for the construction, acquisition, or expansion of a manufacturing facility**, not to include the cost of direct replacement, refurbishment, repair or maintenance of existing machinery or equipment. Any existing facility purchased must have been vacant for at least 12 months to qualify. The definition of ‘facility’ is quite broad and includes land, buildings, structures, improvements, machinery, fixtures, equipment, and other personal property used directly and exclusively in the manufacturing process. Replacement equipment is ineligible for the exemption.

***Payroll and Health Benefit Requirement.*** A general minimum payroll requirement must also be met. **A new exemption will only be granted if salary at the facility increases by \$250,000 as a result of the investment, while maintaining or increasing payroll in subsequent years.** The required payroll gain represents the annual wages that would be paid to roughly five new employees at the state-average manufacturing wage. The salary requirement rises to \$1 million in counties with a population of 75,000 or more (roughly 20 new employees). An initial baseline estimate for payroll is determined for the calendar year immediately preceding the year of the initial application. Some forms of earnings within a firm may be excluded when calculating the baseline. The amount of increased payroll is generally measured using the level during the construction period, or the employment level for up to three years during construction if construction extends beyond three years. Payroll levels must be verified annually through the Oklahoma Employment Security Commission (OESC). Temporary exceptions to the salary requirement have been created in recent years for distressed firms engaged in the automotive manufacturing, aircraft manufacturing, marine engine manufacturing, paperboard manufacturing, and printing sectors. In addition, firms not meeting the payroll requirement in 2009 during the recent recession were granted an additional exemption year beginning after 2012, provided they maintained the payroll baseline from 2009.

**Firms must also offer a basic health benefit plan to all full-time employees** of the facility within 180 days of employment. An affidavit must be filed by an officer of the company certifying that the payroll increase and health insurance requirements will be met.

**Other Qualifying Concerns.** Subsequent changes to the rules allow other non-manufacturing firms to qualify by meeting the following requirements:

1. Firms engaged in research and development directly related to and conducted for the purpose of discovering, enhancing, increasing, or improving future or existing products, processes, or productivity.
2. Facilities, including aircraft repair and replacement parts, primarily engaged in aircraft repair, building, and rebuilding whether or not on a factory basis.
3. Establishments primarily engaged in computer services and data processing as defined under NAICS 5112 (Software Publishers), NAICS 5415 (Computer Systems Design and Related Services), NAICS 334611 (Software Reproducing), and NAICS 519130 (Internet Publishing and Broadcasting and Web Search Portals), and which derive at least 50% of eligible annual gross revenues from out-of state buyers. All sales to the Federal government are deemed to be made to an out-of-state buyer.
4. Establishments as defined under NAICS 5142 (Data Processing Services) which derive at least eighty percent (80%) of their annual gross revenues from out-of state buyers.
5. Establishments primarily engaged in distribution as defined under NAICS 49311 (General Warehousing and Storage), NAICS 49312 (Refrigerated Warehousing and Storage), NAICS 49313 (Farm Product Warehousing and Storage), NAICS 49319 (Other Warehousing and Storage), and NAICS 42 (Wholesale Trade) which meet the following additional qualifications:
  - a. Construction with an initial capital investment of at least \$5,000,000;
  - b. Employment of at least 100 full-time-equivalent employees as certified by the OESC;
  - c. Payment of wages or salaries to its employees at a wage which equals or exceeds 175% of the federally mandated minimum wage; and
  - d. Commencement of construction on or after November 1, 2007, with construction to be completed within three years.
6. Computer data processing, data preparation, or information processing services provider classified in SIC 7374 (Computer Processing and Data Preparation and Processing Services) or NAICS 514210 (Data Processing Services) may apply for exemptions for each year in which new, acquired, or expanded capital improvements to the facility are made if:
  - a. There is a net increase in annualized payroll at any facility or facilities of the applicant in the state of at least \$250,000, which is attributable to the capital improvements, or a net increase of \$7,000,000 or more in capital improvements while maintaining or increasing payroll at the facility or facilities in the state which are included in the application; and
  - b. New full-time employees attributable to the capital investment must be offered a basic health benefit plan within 180 days of employment.
7. An entity engaged in electric power generation by means of wind, as described by NAICS 221119 (Other Electric Power Generation). There must be a net increase in annualized payroll at the facility of at least \$250,000, or a net increase of \$2 million or more in capital improvements while maintaining or increasing payroll.

8. As of 2007, firms engaged in pulp, paper, tissue, and paper board manufacturing will only be eligible for an exemption if:
  - a. An investment of \$2 million or more for capital improvements to a facility is made while maintaining an average weekly wage that is 150% of the average state weekly wage, or
  - b. An investment of \$5 million or more for capital improvements to a facility is made followed by an investment of at least \$5 million annually for the next four years.

**Eligibility.** Eligibility is established by filing an application annually and providing other information as required by the Tax Commission. All applications are subject to full review by the Tax Commission. This includes an assessment of the valuation of all property, which typically includes an on-site verification visit.

**Other Key Provisions.** Other key rules governing the exemption include the following:

1. Eating and drinking places and other retail establishments are specifically excluded.
2. Only one five-year exemption is available for any given qualifying investment.
3. Exemptions for expansions of existing facilities are limited to the increase in taxes attributable to the expansion.
4. Firms that lose eligibility in a given year may reapply and potentially receive approval in a future year, as long as the initial five-year eligibility period has not expired.
5. The exemption begins on January 1 following the initial qualifying use of the property, with some exceptions.
6. Leased assets are eligible for the exemption if the qualifying firm holds equity title.
7. Additional rules govern the exemption if the qualifying property is located within a TIF.

## **Funding - Ad Valorem Reimbursement Fund**

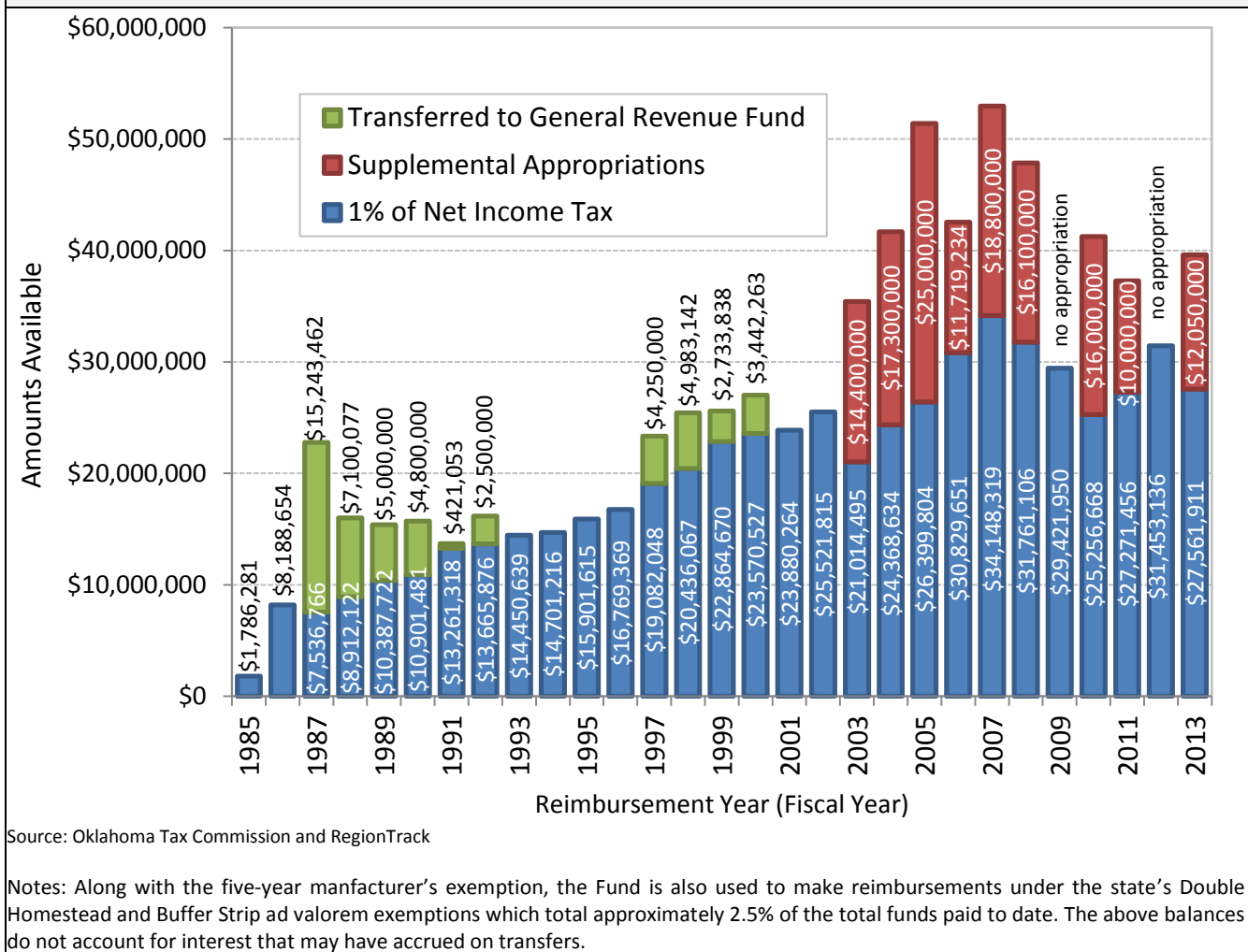
The state's Ad Valorem Reimbursement Fund is used to reimburse counties for the loss of revenue upon final approval of an exemption by the Tax Commission. **Contributions to the Fund come from a dedicated tax stream comprised of one percent of net state personal and corporate income tax revenue.** The county commissioners of each county seeking reimbursement for lost revenue from the Fund must make claims for reimbursement prior to April 30 of each year. Claims must be either approved or disapproved in whole or in part by the Tax Commission by June 15 of each year.

In 1998, the Legislature consolidated the Ad Valorem Reimbursement Fund and the Fund for Reimbursement of Counties. Revenues deposited to the Ad Valorem Reimbursement Fund are also used to repay property tax recipients for additional homestead exemptions granted. In 2000, the Legislature provided for an exemption for agricultural buffer strips, also to be repaid from the Reimbursement Fund. By statute, if monies in the Fund are insufficient to make all such payments, payments for manufacturers' exemptions will receive priority.<sup>3</sup>

The one percent dedicated income tax stream was more than sufficient to fund the program in the early years of the exemption (*see Figure 1*). Exemptions granted often did not fully absorb the balance of funds set aside and produced net revenue to the General Revenue Fund. **The Fund first reached an annual shortfall in 2003 and has not fully covered the actual cost of exemptions since.** A 2003 opinion by

the state's Attorney General suggested that the state was liable for the costs despite a shortfall in the Fund, calling it a public appropriation.<sup>4</sup> **Had excess revenues not been transferred out to the General Revenue Fund in the early years of the exemption, the revenues received in the Fund would have fully paid all claims into fiscal year 2005.**

**Figure 1. Ad Valorem Reimbursement Fund (1985 - 2013)**



**Beginning in fiscal year 2003, deficits in the Fund required ongoing supplemental appropriations.** In the latest budget cycle, a budget agreement reached in May 2014 provided for a \$25.5 million supplemental appropriation for the Fund.<sup>5</sup> A 2011 House Interim Study report noted difficulty by school districts in budgeting revenue they expected to the receive from the Fund when payments are delayed.<sup>6</sup>

### III. Why Offer a Manufacturing Ad Valorem Exemption?

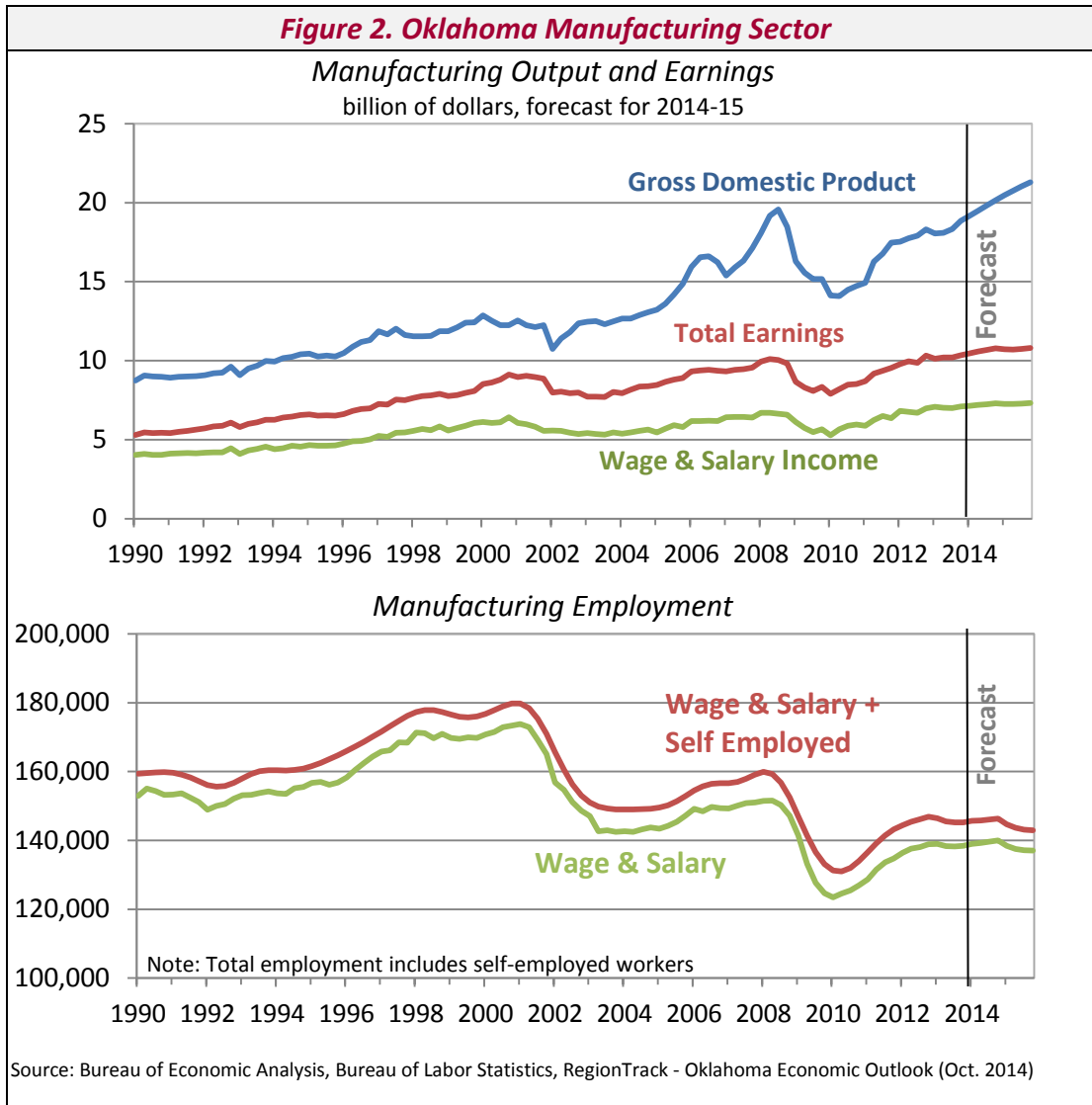
Intense foreign competition, relatively high domestic wage rates, burdensome regulatory conditions, and others factors have weighed on U.S. manufacturing employment since the early 1980s. Some question why an exemption should be offered to the manufacturing sector given the competitive pressures faced by the industry and the relatively weak hiring trend in the sector the past several decades? **The key rationale for aiding the sector is that manufacturing is a large and increasingly productive sector that remains a critical component of the Oklahoma economy.**

#### Economic Role of the Manufacturing Sector in Oklahoma

From a broader economic impact perspective, the manufacturing sector represents 10% of state output, has significant economic linkages with other state industries, and is the primary source of export activity in the state. More specifically, key reasons include the following:

1. The industry still comprises a large share of total state economic activity. **Gross domestic product (GDP) originating in the Oklahoma manufacturing sector is expected to reach \$20 billion in 2014 (see Figure 2), more than 10% of total state GDP.**
2. There is still significant long-run growth potential for the state's manufacturing sector. State manufacturing output continues to expand over time and post new highs in production. After a more than 25% drop in the recent recession, GDP in the state manufacturing sector has steadily recovered and posted a new all-time high in mid-year 2014 (see Figure 2). Current GDP in the sector has expanded steadily at a more than 5% annual pace in the recovery and is expected to continue this pace through 2015 in our latest outlook for the sector.
3. The manufacturing sector produces large economic spillover effects to the state economy. Manufacturers are large purchasers of items from nearly every other major industry sector. **State manufacturing firms made purchases totaling an estimated \$19.2 billion in 2011 from other firms located in the state.**<sup>7</sup>
4. Manufacturing is a basic industry that produces products primarily for export outside Oklahoma. Of the industry's \$71.1 billion in total output in the sector in 2011, nearly 80% was exported outside the state - \$45.1 billion was exported to other states, while another \$11.2 billion was exported outside the U.S. **This makes manufacturing the state's key export industry, and the state's largest export industry by a substantial margin.**
5. Manufacturing continues to pay wages well above the state average. **In Oklahoma, manufacturing wage and salary workers earned an average of \$53,154 annually in 2013; nearly 25% more than the \$43,090 average earned across all industry sectors.**
6. Total earnings in the industry continue to grow along with output (see Figure 2). Total wages earned in the manufacturing sector exceeded \$7 billion in 2013. **Total earnings, which includes self-employment income, topped \$10 billion in 2013, or almost 10% of total state earnings.**
7. Manufacturing is a highly capital-intensive industry that supports substantial investment expenditures each year. At the national level, the manufacturing sector maintains the largest capital

base of all major industry groups, including the mining and utility sectors. In Oklahoma, manufacturing is the second most capital-intensive industry after mining, which includes oil and gas, with recent estimates suggesting that state manufacturers made \$1.3 billion in new capital expenditures in 2011. **Offering an investment-based ad valorem tax exemption is highly compatible with the capital-intensive structure of the industry.**



8. **Oklahoma’s manufacturing sector remains highly competitive relative to most states.** Despite slowly declining manufacturing employment in Oklahoma in recent years (*see Figure 2*), the state’s factory sector has managed to far outperform the U.S. and most other states. Total U.S. manufacturing employment is down 40% from its historical peak of nearly 20 million workers in 1979, with the industry losing nearly 8 million jobs since. Factory employment in Oklahoma peaked in 1981 at just more than 200,000 workers, and is down only about 25% to approximately 150,000 workers currently. Measured from the U.S. peak in 1979 to 2013, Oklahoma ranks 19<sup>th</sup> among the states with a 21.2% decline in employment in the period, roughly half the national decline. Only 8 states have managed to increase their manufacturing employment since 1979 –

**“Offering an investment-based ad valorem tax exemption is highly compatible with the capital-intensive structure of the industry...**

**... from a policy perspective, there is a sound underlying economic rationale for implementing tax strategies that support growth and lean against any shrinkage in the sector.”**

Nevada, North Dakota, South Dakota, Utah, Alaska, Arizona, Wyoming, and Idaho. Nearly all of these states posted their gains in the first half of the period and have struggled to maintain output levels since the late 1990s. Many states have seen their manufacturing sector nearly disappear the last few decades. Twenty states have suffered a decline of more than 40% in factory employment since 1979; 14 of these have seen a decline of more than 50%, with seven states posting an employment decline of 60% or more.

9. **The manufacturing industry pays significant state and local tax revenue.** Manufacturing firms paid an estimated \$370 million in direct taxes on production and imports in 2012.<sup>8</sup> Payroll, income, and other taxes paid by manufacturers and their employees are many times that amount.

Because of the industry's outsized economic impact, fluctuations in the manufacturing sector often produce accentuated impacts on the state economy. Hence, **from a policy perspective, there is a sound underlying economic rationale for implementing tax strategies that support growth and lean against any shrinkage in the sector.** Oklahoma manufacturing is also playing a large role in the reemergence of the state's energy sector, and is needed to support growth in it and other related industries.

## **How do Other States Use Ad Valorem Tax Exemptions for Manufacturers?**

A fierce battleground has developed among the states to attract new manufacturing activity and encourage growth at existing facilities. **The outsized economic impact of the manufacturing sector has forced most states to seek ways to support future growth in the sector, and tax incentives are a common competitive tool used.** Many states have long allowed local governments to provide ad valorem tax relief to private businesses, especially manufacturers given their large reliance on structures and equipment.

C2ER (Council for Community and Economic Research) maintains a comprehensive State Business Incentives Database<sup>9</sup> detailing economic development incentives available across all 50 states. The database was used to identify states with local ad valorem tax exemptions targeting investment in manufacturing with features that are similar to the exemption available in Oklahoma. We further identified manufacturing-related investment tax exemptions that worked through other tax streams.

**The search identified local ad valorem tax exemptions structured similar to Oklahoma's (that is, for investment in either structures or equipment or both and for use in manufacturing) available in nine states - Alabama, Colorado, Connecticut, Delaware, Florida, Idaho, Kansas, South**

**Carolina, and Washington.** While full reimbursement by the state to counties for lost ad valorem tax revenue is currently unique to Oklahoma, we find some evidence of other states providing reimbursement to counties and municipalities for ad valorem tax exemptions.<sup>10</sup>

1. **Kansas** formerly used a similar reimbursement mechanism for personal property covered under its Business Machinery and Equipment ad valorem tax exemption.<sup>11</sup> The program operated on a sliding scale from 90% reimbursement to the counties in 2007 down to 10% reimbursement in 2011. Reimbursements in the first two years of the program totaled \$25.9 million in 2007 and \$53.5 million in 2008. These are similar in amount to the reimbursements claimed in Oklahoma in the same period. Claims for 2007 were paid in full, but only \$25.0 million was appropriated to the reimbursement fund in 2008. Exemptions remained in place totaling \$53.0 million in 2009, \$38.5 million in 2010, and \$14.9 million in 2011, but went unreimbursed.
2. **Maine** has a constitutional requirement to reimburse municipalities for half of property tax revenue lost as a result of property tax exemptions or credits enacted after 1978.<sup>12</sup>
3. **Maryland** has a general 50% property tax reimbursement for qualified personal property placed in a designated enterprise zone.<sup>13</sup>

Reimbursement is quite common among the states for other forms of ad valorem exemptions, but these programs are generally for residential housing, available only to individuals (e.g. veterans and disabled taxpayers), and much smaller in scope and cost.

The nine states with programs similar to Oklahoma's use a variety of mechanisms to reduce ad valorem taxes for manufacturers including rebates, abatements, refunds, and discounts (or fractional exemptions). These states also commonly limit or ration the availability of the exemptions in the following ways:

1. Minimum investment thresholds
2. Industry-specific exemptions limited to target industries
3. Limits on the total amount of exemptions relative to the total local tax base
4. Geographical restrictions – e.g. must take place within high unemployment counties, Community Empowerment Zones, and Enterprise Zones
5. Time limit for the exemption – typically range from 5 to 30 years; most are 5 to 10 years
6. Other limits on exemption coverage – e.g. land value not included in the exemption

A number of other types of exemptions that specifically target manufacturing investment but not administered through the ad valorem tax system are available across the states. Exemptions for manufacturing investment that offset one of more of sales, use, franchise, payroll, and corporate income taxes are available in Colorado, Florida, Louisiana, Mississippi, Missouri, New Jersey, New York, North Carolina, North Dakota, Rhode Island, South Carolina, Washington, West Virginia, and Wyoming.

Several states also have general property tax exemptions on capital investments available to all firms regardless of industry. These include Idaho, Kansas, Kentucky, Maine, Mississippi, and Nevada.

Mississippi also allows the negotiation of a property tax fee in lieu of property tax payments on large capital investments exceeding \$100 million.



## Economic Expectations for the Exemption

From an economic development perspective, **Oklahoma's manufacturing ad valorem tax exemption has a clearly defined purpose** and is structured such that it:

1. Focuses on increasing capital investment and wage growth in the state;
2. Favors industries that are consistent with the state's strategic plan – manufacturing, research and development, aviation and aerospace, wind power, data centers, and distribution centers;
3. Encourages economic development across all regions of the state;
4. Distributes the cost burden of the exemption statewide;
5. Applies a higher salary threshold for more highly populated counties;
6. Encourages the reemployment of unoccupied facilities suitable for manufacturing;
7. Encourages employer provision of basic health benefits;
8. Encourages both new and existing employers to expand within the state; and
9. Is equally available to small and large firms given its modest minimum investment and payroll gain.

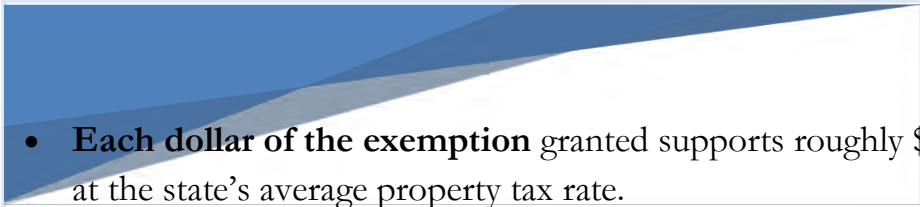
Performing an economic evaluation of the exemption requires a defined set of expectations. In 2012, the state's Incentive Review Committee recommended the following **general economic goals for all state tax incentives**:<sup>14</sup>

1. They should result in **increased employment and income** within the state;
2. Incentives should ultimately produce **increased revenue to state and local government**;
3. They should increase **capital growth**;
4. They should be **competitive with other neighboring states**;
5. They should **encourage a more skilled and educated workforce**.

These are all reasonable goals for state tax incentives and can be easily integrated into a test of the manufacturer's ad valorem exemption. Nonetheless, the exemption is likely to score much better on some of these measures than on others.

For example, given ongoing trends in the industry (*see Figure 2*), Goal 1, higher employment and income in the state, is more likely to be met with respect to income than to employment. **The current trends in manufacturing suggest that output in the sector will continue to grow and support higher earnings in the industry, but that meaningful employment gains are unlikely in the current environment.** Manufacturers are increasingly focused on worker productivity gains. This tends to increase total earnings paid to employees but not the number of employees. The exemption also carries an explicit requirement to increase payroll in order to qualify and remain eligible for the exemption, but has no such requirement for employment.

More realistically, **the primary goal for the manufacturing incentive should be increased capital growth** (goal 3). Increased capital spending is viewed as a highly effective channel for economic development because of the leverage it ultimately creates on output within the state. Each dollar of the exemption granted supports roughly \$87 of capital investment at the state's average property tax rate of 1.15% (1/.0115). Each dollar of capital investment in turn supports an average of \$2.60 in new output.<sup>15</sup>

- 
- **Each dollar of the exemption** granted supports roughly \$87 of capital investment at the state's average property tax rate.
  - **Each dollar of capital investment** in turn supports an average of \$2.60 in new output.
  - **As a result, each dollar in ad valorem tax exemption** supports an average of \$225 in new output in the state economy.

**As a result, each dollar in ad valorem tax exemption supports an average of \$225 in new output in the state economy.** It is this added output and earnings in the industry that in turn produces higher tax revenue to state and local governments (goal 2) - not simply higher employment.

An ad valorem tax exemption is also unlikely to function as a highly effective workforce development tool. The incentive only indirectly encourages a more skilled and educated workforce (goal 5) by encouraging employers to use more capital in the production process. This frees manufacturing firms to use more highly-skilled workers in the production process over time.

The ad valorem exemption is viewed as competitive relative to nearby states (goal 4) as discussed in the prior section.

**In short, reasonable expectations suggest that the manufacturer's ad valorem tax exemption should primarily encourage capital growth within the state; produce gains in output and earnings at establishments using the new capital; generate increased tax revenue from added output and earnings; and influence employment primarily through retention of existing state manufacturing jobs.**

## IV. Data Availability and Estimation Issues

**Only limited data is available from the Tax Commission for use in evaluating the economic role of the ad valorem tax exemption.** In general, all information within the records of the Tax Commission is considered confidential unless public disclosure is provided for by law. The Tax Commission provided considerable data for the report, but this information falls far short of the information needed to perform a complete evaluation of the program. For purposes of the report, we supplemented Tax Commission data in several ways in order to get much closer to the set of critical data needed for a full evaluation.

### Tax Commission Data

We submitted a written request to the Office of the General Counsel of the Tax Commission for a range of historical data on firms receiving the ad valorem exemption. Our request was treated as an Open Records enquiry by the Tax Commission and then submitted to an internal review committee for consideration. **The Tax Commission's response provided only those data sources which they deemed were authorized for release under state law.**

Considerable information was provided that was not considered confidential or privileged. This includes a historical series of reports detailing the following items for each exemption granted back to the 2000 tax year: firm name, exemption year, year (1-5) in the life of the exemption, amount of the exemption, and the county where the establishment was located. Aggregate totals were provided for exemptions granted in each year, as well as subtotal for each year by broad industry category (manufacturing, electric plants, wind power, distribution centers, and data processing). The data also included the total number of applications and application denials in the six most recent tax years.

The Tax Commission declined to provide any information about the breakdown of the exemption by value or type of investment made. This information is not available in any public report at the firm, county, or aggregate state level. In short, no public information is available about the types of investments being made in order to qualify for the exemption. In particular, Tax Commission data does not indicate whether qualifying firms are investing in structures or buying equipment. There is also no indication whether any investment in structures is for newly constructed buildings, existing buildings purchased and improved, or existing structures expanded. This leaves taxpayers and lawmakers with only limited information about many of the transactions that qualify for the tax exemption and little ability to determine whether qualifying investments are consistent with the intent of the law. This is a critical piece of information needed to evaluate the effectiveness of the program.

The Tax Commission also declined to provide any form of information about the employment and salary data submitted by firms on the Tax Commission application or used in the exemption approval process, either at the firm level or in aggregate form.<sup>16</sup>

### Data Estimation and Collection

To facilitate a more thorough evaluation of the program, we supplemented the Tax Commission data for the past five tax years (2009 to 2013) in several ways:

1. Used online searches to gather information about all exemptions exceeding \$500,000 granted in the past five tax years. These exemptions accompanied very large investments in structures and equipment that typically exceeded \$50 million. Only 120 of the 1,976 exemptions granted in the period were for more than \$500,000, but they accounted for roughly 60 percent of the total value of exemptions granted.
2. Formed estimates of the relative shares of the exemptions valued above \$500,000 that accrued to structures and equipment using tax records provided on several county assessor websites. Real property receiving the exemption can generally be identified in county records. Because not all property types (primarily equipment or personal property) can be identified, the shares are formed by totaling the real property that could be clearly identified and then assuming that personal property comprised the balance. Assigning unknown property to personal property likely over weights the data to personal property, but it also provides a more conservative estimate for economic impact purposes. For investment in structures, the information gathered in part 1 above was then used to identify whether the investment was new construction, purchase of an existing structure, or expansion of an existing structure. We were able to find considerable public information on nearly all of the 120 exemptions above \$500,000.
3. Estimated the underlying investment values that accompanied each ad valorem exemption granted in the five-year period. The asset value is estimated by dividing the exemption amount by the average of the effective personal and real property tax rates at the county level. Weighted across all exemptions offered between 2009 and 2013, the statewide average effective tax rate is 1.15%. For example, a typical \$1 million exemption would require an average investment in assets valued at  $\$86.96 \text{ million} = 1,000,000 / .0115$ .
4. Tabulated a list of unique firms receiving the exemption by reconciling name changes, mergers, and acquisitions in the most recent five-year period. The 1,976 ad valorem exemptions granted the past five years accrued to 244 unique firms. Each exemption represents a group of assets, with multiple asset groups commonly entered into the program by a firm in a given year.
5. Assigned a 2-digit NAICS industry sector code to each exemption recipient in the five-year period to allow analysis of the data by industry. This is needed for evaluating any differential impacts by industry within the manufacturing sector. The appropriate industry code for most firms was obvious; however several exemptions required extensive online searches to find news items describing the details of the transaction in question. A few firms did not fit well into any 2-digit NAICS classification, while others could have easily fit into more than one sector. Some error in classifying the firms will undoubtedly remain.

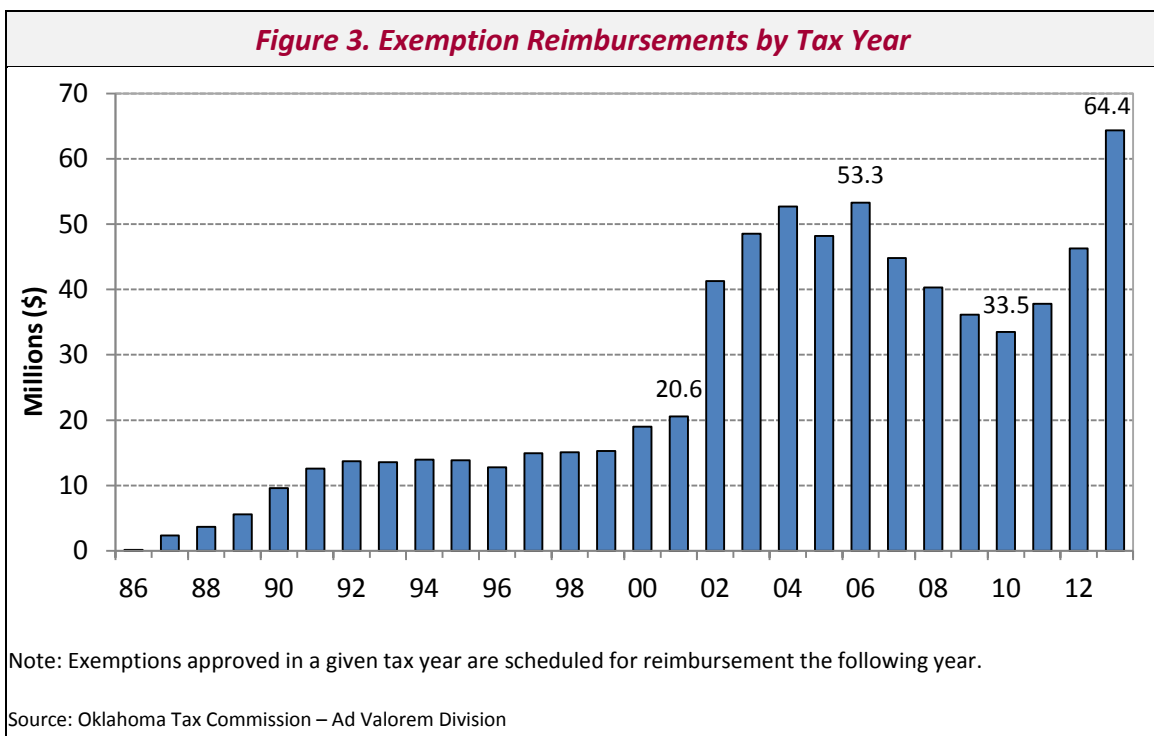
Both Tax Commission records and the supplemental data described above are used in the next section to provide a comprehensive profile of the usage of the ad valorem tax exemption over time.

## V. How Has the Ad Valorem Exemption Been Used Over Time?

Nearly \$735 million in state reimbursements have been made to counties on behalf of qualifying firms since the inception of the ad valorem tax exemption in 1986. Reimbursements averaged \$43.6 million annually in the most recent five years ended in 2013, and \$26.2 million annually over the life of the program. Manufacturers have traditionally been the largest recipient group but currently receive slightly less than half the value of exemptions. Wind farms recently moved ahead of manufacturers as the largest recipient group. The use of the exemption the past decade is spread fairly evenly across the state.

### Exemptions Granted by Year

Following enactment of the exemption in 1986, the annual value of exemptions increased steadily to approximately \$10 million by the fifth year of the program (see Figure 3). Exemptions then remained in a relatively narrow range between \$10 million and \$20 million annually from 1990 to 2001. The annual value then jumped sharply to more than \$40 million beginning in 2002 as electric power plants were added to the list of qualifying firms. The value of exemptions declined considerably after 2006 as power plants were no longer considered qualified investments and the recent national recession began.



Annual exemptions bottomed at a recent low of \$33.5 million in the 2010 tax year as manufacturers continued to struggle and the recession began to unwind. Exemptions have since rebounded rapidly to a single-year record of \$64.4 million in 2013, driven largely by new wind farm construction. Since the surge in the use of the program in 2002, exemptions have averaged \$45.6 million annually.

### Exemptions by Industry Type

Manufacturing<sup>17</sup> firms have traditionally received the largest share of ad valorem exemptions. By value, exemptions awarded to manufacturers have remained in a narrow range between \$23 and \$29 million

annually the past decade (see Figure 4). Some pullback was present in 2010 following the recent recession, but manufacturing exemptions have since risen back near historical averages in 2013 to \$27.3 million.

**Most of the volatility in the size of the program over its life is traced to shifts in the industry mix outside of the manufacturing sector.** When power plants were introduced to the program in 2002, they quickly began to rival manufacturers as the top recipient group. Power plants peaked at \$18.5 million in 2005 but were subsequently dropped from the program by 2009. Similarly, the rapid development of wind power in the state since 2010 eventually vaulted wind power into the lead in 2013 as the largest major exemption recipient.

**Data processors and distribution centers continue to receive only a modest share of total exemptions.** Data processing firms are currently the third largest recipient group at \$3.8 million in 2013. The total granted to data processors has risen considerably in percentage terms in recent years, with exemptions more than doubling to nearly \$4 million in both 2012 and 2013. Distribution centers remain the smallest recipient group with less than \$1 million in exemptions annually in recent years.

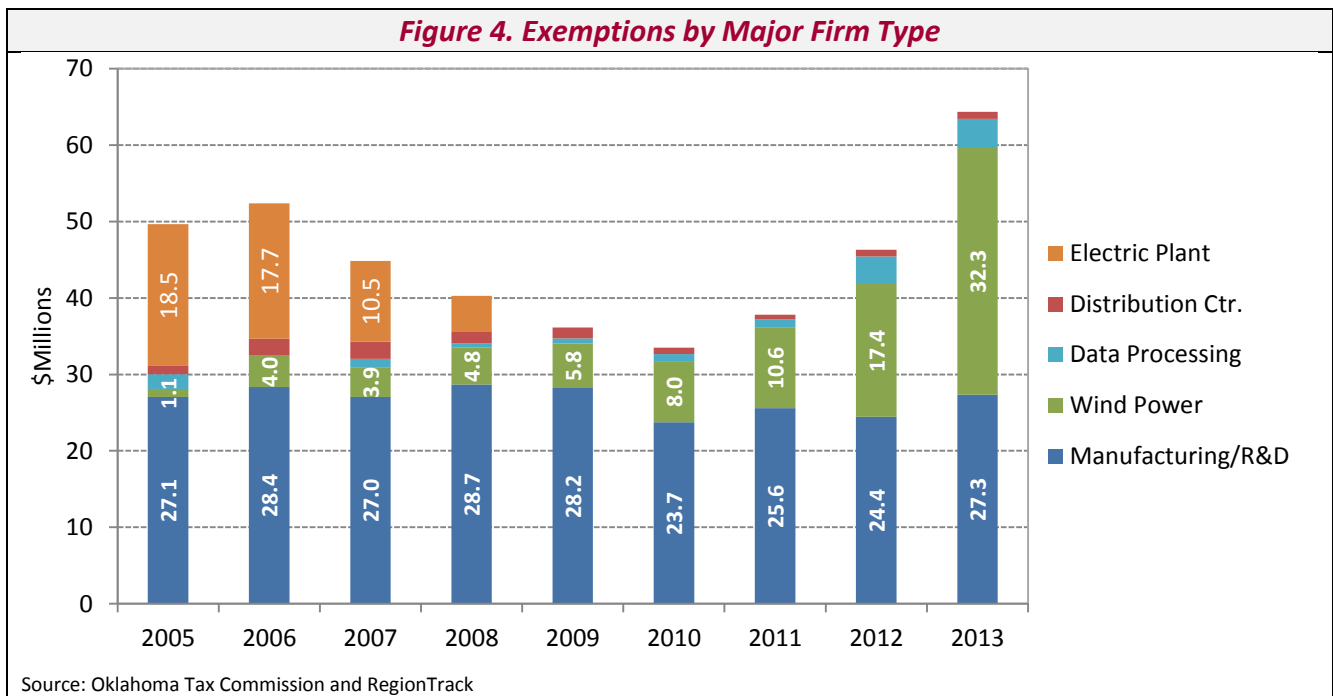


Figure 5 provides a more detailed breakdown of exemptions and asset values by industry type the past five years. The exemptions granted under the ad valorem program are quite large but are accompanied by sizeable capital investments in structures and equipment by the recipient firms.

Actual investment values are not reported or released by the Tax Commission but can be estimated with a high degree of accuracy for each exemption. Estimated total asset values for each exemption category are reported by year in Figure 5. They are first calculated for each recipient firm using the average of personal and real property tax rates at the county level and then aggregated across firms by industry.

**In 2013, qualifying firms maintained investments in structures and equipment totaling an estimated \$6.1 billion in exchange for \$64.4 million in ad valorem tax exemptions.** The investment

represents 6.8% of the \$90.3 billion in total commercial real and personal property in Oklahoma at fair cash value.<sup>18</sup> It is this underlying investment in physical structures and equipment that triggers the initial economic impact felt from the exemption.

Over the past five years, manufacturing firms averaged \$2.3 billion annually in assets covered by the exemption. Wind power assets in the program totaled \$3.3 billion in 2013; data centers maintained \$390.8 million in assets, while distribution center assets were \$70.1 million in the most recent period.

**Figure 5. Exemptions by Firm Type and Asset Value**

Tax Year	Exemption Profile	Manufacturing	Wind Power	Data Center	Distribution Center	Total
<b>2009</b>	# of Exemptions	451	10	3	16	480
	Total Exemption Amount	27,710,726	5,837,520	636,273	1,953,048	\$36,137,567
	Avg. Exemption Amount	61,443	583,752	212,091	122,066	\$75,287
	Total Asset Value	2,473,127,434	647,689,023	47,772,910	176,579,305	\$3,345,168,672
	Avg. Asset Value	5,483,653	64,768,902	15,924,303	11,036,207	\$6,969,101
<b>2010</b>	# of Exemptions	330	14	4	13	361
	Total Exemption Amount	23,739,944	8,002,526	926,430	813,180	\$33,482,080
	Avg. Exemption Amount	71,939	571,609	231,608	62,552	\$92,748
	Total Asset Value	2,105,678,222	884,231,187	69,558,596	66,091,992	\$3,125,559,997
	Avg. Asset Value	6,380,843	63,159,371	17,389,649	5,083,999	\$8,658,061
<b>2011</b>	# of Exemptions	295	22	5	14	336
	Total Exemption Amount	25,577,998	10,603,936	1,035,616	611,203	\$37,828,753
	Avg. Exemption Amount	86,705	481,997	207,123	43,657	\$112,586
	Total Asset Value	2,269,036,692	1,142,030,310	77,756,544	46,902,201	\$3,535,725,747
	Avg. Asset Value	7,691,650	51,910,469	15,551,309	3,350,157	\$10,522,993
<b>2012</b>	# of Exemptions	305	32	6	16	359
	Total Exemption Amount	24,441,114	17,373,296	3,602,276	872,639	\$46,289,325
	Avg. Exemption Amount	80,135	542,916	600,379	54,540	\$128,940
	Total Asset Value	2,178,915,816	1,924,298,883	361,922,108	65,697,221	\$4,530,834,029
	Avg. Asset Value	7,143,986	60,134,340	60,320,351	4,106,076	\$12,620,708
<b>2013</b>	# of Exemptions	361	54	6	19	440
	Total Exemption Amount	27,340,199	32,270,226	3,824,392	921,459	\$64,356,276
	Avg. Exemption Amount	75,735	597,597	637,399	48,498	\$146,264
	Total Asset Value	2,385,343,155	3,269,295,614	390,756,430	70,079,895	\$6,115,475,094
	Avg. Asset Value	6,607,599	60,542,511	65,126,072	3,688,416	\$13,898,807

Source: Oklahoma Tax Commission

## Trends in First-Year Exemptions

The five-year ad valorem exemption is initially granted for year 1 upon successful completion of the Tax Commission’s detailed application process. This generally involves a field visit to the location and inspection of all assets described in the application. Firms must then reapply each year and have their eligibility recertified by the Tax Commission in order to receive the exemption in years 2 through 5.

Figure 6 summarizes approved ad valorem exemptions the past five tax years with a breakdown by exemption year. In any given tax year, all active exemptions will be somewhere between year 1 and year 5 of their life. For example, in 2013, the latest tax year available, 440 exemptions valued at \$64.4 million were approved for reimbursement. Of this total, 141 were first-year exemptions valued at \$25.3 million; 116 were year 2 exemptions valued at \$16.3 million; 75 were year 3 exemptions valued at \$11.6 million; 44 were year 4 exemptions valued at \$5.6 million; and 64 exemptions were valued at \$5.6 million in the fifth and

final year of eligibility. The average first-year exemption granted in 2013 was valued at \$179,385, more than double the average of \$73,209 from as recently as 2009.

**Figure 6. Exemptions by Tax Year and Exemption Year – All Qualifying Firms**

Tax Year	Exemption Profile	Exemption Year					Total
		1	2	3	4	5	
<b>2009</b>	# of Exemptions	106	105	96	94	79	480
	Total Exemption Amount	7,760,164	6,972,653	9,213,940	7,848,978	4,341,832	\$36,137,567
	Avg. Exemption Amount	73,209	66,406	95,979	83,500	54,960	\$75,287
	Total Asset Value	731,650,176	642,087,523	792,525,867	774,226,398	404,678,708	\$3,345,168,672
	Avg. Asset Value	6,902,360	6,115,119	8,255,478	8,236,451	5,122,515	\$6,969,101
<b>2010</b>	# of Exemptions	74	72	62	79	74	361
	Total Exemption Amount	7,797,501	6,806,817	5,681,339	7,691,235	5,505,188	\$33,482,080
	Avg. Exemption Amount	105,372	94,539	91,635	97,357	74,394	\$92,748
	Total Asset Value	727,007,113	664,254,913	535,780,301	663,889,974	534,627,695	\$3,125,559,997
	Avg. Asset Value	9,824,420	9,225,763	8,641,618	8,403,671	7,224,699	\$8,658,061
<b>2011</b>	# of Exemptions	84	71	61	55	65	336
	Total Exemption Amount	12,681,101	6,954,843	6,408,912	5,194,501	6,589,396	\$37,828,753
	Avg. Exemption Amount	150,965	97,956	105,064	94,445	101,375	\$112,586
	Total Asset Value	1,207,728,680	640,169,896	627,695,467	490,477,988	569,653,716	\$3,535,725,747
	Avg. Asset Value	14,377,722	9,016,477	10,290,090	8,917,782	8,763,903	\$10,522,993
<b>2012</b>	# of Exemptions	122	77	45	60	55	359
	Total Exemption Amount	17,639,997	12,183,265	5,998,706	6,364,582	4,102,775	\$46,289,325
	Avg. Exemption Amount	144,590	158,224	133,305	106,076	74,596	\$128,940
	Total Asset Value	1,755,675,367	1,167,811,131	562,427,782	639,889,150	405,030,599	\$4,530,834,029
	Avg. Asset Value	14,390,782	15,166,378	12,498,395	10,664,819	7,364,193	\$12,620,708
<b>2013</b>	# of Exemptions	141	116	75	44	64	440
	Total Exemption Amount	25,293,324	16,263,669	11,585,775	5,584,083	5,629,425	\$64,356,276
	Avg. Exemption Amount	179,385	140,204	154,477	126,911	87,960	\$146,264
	Total Asset Value	2,289,511,527	1,633,562,319	1,110,358,993	526,746,386	555,295,868	\$6,115,475,094
	Avg. Asset Value	16,237,670	14,082,434	14,804,787	11,971,509	8,676,498	\$13,898,807

Source: Oklahoma Tax Commission

Most exemptions complete all five years of eligibility, but some leave the program prior to year 5. The primary reasons include: 1) a firm does not reapply; 2) a firm does not complete the application process in a timely manner, and 3) a completed application is denied. Hence, both the number and value of exemptions from a given cohort of first-year exemptions tend to decline steadily beginning in year 2 as shown in Figure 6. Even if an exemption is granted for all five years, the value of the exemption will typically decline, particularly for equipment, to reflect depreciation.

Based on data for exemptions granted over multiple tax years (including the recent period of economic recession and recovery), we estimate that approximately 5% of exemptions in any given first-year cohort will fall out of the program each subsequent year. This suggests that slightly more than 80% of first-year applications will receive an approval in year 5.

The annual approval rate is sensitive to the prevailing economic climate, with approval rates much lower on average during weak economic conditions. For example, renewals among the group of 106 first-year exemptions granted in tax year 2009 totaled only 72 in 2010 (year 2), 61 in 2011 (year 3), 60 in 2012 (year 4), and 64 in 2013 (year 5). Overall the 2009 cohort of first-year approvals declined by 32% in the second year (2010), while only 60% of the initial group received an exemption in year 5. Also note that there were



more recipients in year 5 than in year 4, which reflects firms requalifying for the exemption after failing to qualify in an earlier year.

The trend in first-year applications sets the overall trend for the total number and value of exemptions in future tax years. First-year approvals slowed considerably following the recent recession to only 74 exemptions valued at \$7.8 million in 2010 (see Figure 6). This period coincided with a challenging operating environment for most industries and a sharp increase in the number of applications denied by the Tax Commission (see Figure 7). Denials peaked at 155 in tax year 2010, a level more than double the 74 denials in 2009.<sup>19</sup> A potential concern with the pattern of denials is that they move strongly countercyclical relative to overall economic conditions, increasing sharply during weak economic conditions. This may ease the budget impact of the exemption for the Legislature during slower economic conditions but it may also reduce the use of the exemption exactly when it is needed most by manufacturers.

Both the number and value of first-year approvals have risen rapidly since 2011 as wind farms have increasingly qualified for the exemption. Over the past five tax years, an average of 105 first-year exemptions were approved with a value of \$14.2 million annually.

**Figure 7. Exemption Applications and Denials**

<i>All Firms</i>						
Exemption Profile	Tax Year					Average
	2009	2010	2011	2012	2013	2009-13
Applications Filed (yrs. 1-5)	546	522	409	398	454	466
Application Denials	74	155	77	61	40	81

Source: Oklahoma Tax Commission and RegionTrack

## Exemptions Granted by Geography

The ad valorem tax exemption is used widely across the state. **In the past decade, the exemption was used in 63 of the state's 77 counties to offer private firms a total of \$456 million in reduced ad valorem taxes** (see Figure 8). The exemption has become a valuable local economic development incentive, with 42 counties providing exemptions totaling \$1 million or more the past decade. During the past decade, most (46) participating counties used the exemption in seven or more years.

**Oklahoma and Tulsa Counties are by far the largest users of the exemption, with each accounting for nearly \$75 million in exemptions the past decade.** Three additional counties, Pittsburg, Kay, and Roger Mills, each provided a total of \$20-25 million in ad valorem incentives the past ten years. Roger Mills experienced significant growth in wind farms, while Pittsburg and Kay used the incentive to grow their sizeable local manufacturing bases.

Ten additional counties provided between \$10 million and \$20 million in exemptions the past decade – Bryan, Canadian, Carter, Comanche, Custer, Garvin, Mayes, Muskogee, Wagoner, and Woodward. Wind power investments are significant in Canadian, Comanche, Custer, and Woodward counties. Distribution centers were prevalent in Bryan and Carter counties. The remaining counties provided exemptions largely to the manufacturing sector the past decade.

**Figure 8. Exemptions by County and Tax Year**

County	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	10-Year Total	Rank
Adair	\$358,915	\$92,571	\$117,627	\$215,143	\$135,987	\$3,135	\$112,342	\$165,343	\$321,292	\$309,876	\$1,832,231	36
Alfalfa	-	-	-	-	-	-	-	-	-	-	0	64
Atoka	-	21,040	45,863	59,098	73,326	87,524	-	-	-	-	286,851	56
Beaver	231,841	106,200	97,566	99,030	91,081	-	-	-	-	-	625,718	48
Beckham	4,337	3,642	3,157	1,524	8,395	6,667	12,229	147,570	171,596	176,723	535,840	51
Blaine	31,618	60,544	73,712	90,105	80,152	57,535	17,153	-	7,495	40,530	458,844	52
Bryan	179,768	2,422,489	1,785,012	1,980,648	1,734,177	1,743,073	193,287	168,819	130,004	163,735	10,501,012	14
Caddo	239,795	248,791	582,554	569,943	555,181	339,159	264,809	-	1,399,137	2,404,787	6,604,156	20
Canadian	390,995	324,465	523,625	913,986	1,053,646	805,203	526,005	1,286,458	917,261	6,636,659	13,378,303	10
Carter	1,241,265	981,491	2,658,500	2,971,317	2,815,223	2,993,370	2,170,695	1,189,012	1,126,188	1,043,545	19,190,606	6
Cherokee	81,807	80,762	82,869	76,734	1,321	-	-	-	-	-	323,493	55
Choctaw	-	-	-	-	-	-	-	-	-	-	0	64
Cimarron	-	-	-	-	-	-	-	-	-	-	0	64
Cleveland	774,738	713,225	556,871	553,918	419,566	57,005	14,237	25,499	443,619	486,425	4,045,103	23
Coal	-	-	-	-	-	-	-	-	278,002	279,090	557,092	50
Comanche	1,841,332	581,714	566,364	535,621	493,342	114,991	1,476,080	1,494,436	3,413,536	3,408,627	13,926,043	9
Cotton	-	-	-	-	-	-	-	-	-	-	0	64
Craig	69,349	81,580	46,385	-	-	-	-	-	-	36,341	233,655	57
Creek	146,286	158,577	237,984	336,854	478,708	356,782	293,967	289,403	337,466	301,158	2,937,185	28
Custer	64,181	99,856	2,192,391	2,219,677	2,227,939	2,479,258	2,544,652	758,940	941,095	880,041	14,408,030	8
Delaware	56,751	48,811	29,007	46,796	67,884	76,179	141,730	142,573	160,865	115,496	886,092	44
Dewey	-	-	-	-	-	-	-	-	1,588,124	1,635,520	3,223,644	26
Ellis	53,959	54,648	59,569	54,674	-	-	-	-	-	-	222,850	58
Garfield	105,791	237,869	242,548	77,923	915,795	1,084,965	1,139,376	1,144,852	3,284	3,973,331	8,925,734	16
Garvin	458,491	146,966	654,727	1,346,024	1,466,145	1,350,824	1,563,303	1,366,155	882,613	1,129,689	10,364,937	15
Grady	105,332	67,046	16,853	-	13,627	14,001	-	1,285,379	2,094,833	2,434,731	6,031,802	21
Grant	-	-	-	-	-	-	-	-	-	572,609	572,609	49
Greer	-	-	-	-	-	-	-	-	-	-	0	64
Harmon	-	-	-	-	-	-	-	-	-	-	0	64
Harper	155,606	163,058	163,102	160,161	1,187,161	1,295,987	1,398,788	1,432,674	1,452,722	276,112	7,685,371	17
Haskell	-	-	-	-	-	-	-	-	-	-	0	64
Hughes	-	-	-	-	-	720,203	724,626	744,758	665,261	-	2,854,848	29
Jackson	105,155	129,017	305,788	441,901	338,057	275,866	260,251	129,715	119,044	54,217	2,159,011	32
Jefferson	-	-	-	-	-	-	-	-	-	-	0	64
Johnston	-	-	-	-	-	-	-	-	-	-	0	64
Kay	982,100	1,245,643	2,391,461	4,435,855	3,952,133	2,546,749	2,194,212	2,663,427	1,675,962	2,932,302	25,019,844	4
Kingfisher	-	-	-	-	-	-	-	-	-	-	0	64
Kiowa	-	-	947,219	895,721	896,132	905,935	-	-	-	1,084,274	4,729,281	22
Latimer	6,588	2,785,278	17,734	24,997	-	23,165	19,425	17,717	13,836	30,934	2,939,674	27
Le Flore	-	19,231	18,507	50,681	57,166	6,241	-	25,234	-	12,743	189,803	60
Lincoln	-	-	-	-	-	-	-	-	-	-	0	64
Logan	639,483	672,376	674,363	-	-	-	-	-	-	-	1,986,222	34
Love	402,866	412,564	430,928	464,963	34,590	37,599	2,315	2,763	2,545	15,595	1,806,728	37
McClain	2,741,419	-	-	-	-	-	-	-	-	-	2,741,419	30
McCurtain	1,033,097	1,008,424	1,722,536	1,167,808	997,062	617,093	-	-	323,310	437,735	7,307,065	19
McIntosh	-	-	-	-	-	-	-	-	-	-	0	64
Major	-	-	15,160	14,243	31,370	30,723	27,440	16,105	24,833	16,223	176,097	61
Marshall	43,484	132,496	141,191	188,163	169,441	167,800	43,764	153,363	149,248	136,217	1,325,167	39
Mayes	278,440	312,527	339,075	451,771	733,982	692,099	680,001	693,216	2,983,587	3,383,045	10,547,743	13
Murray	-	-	-	-	-	-	-	-	14,562	23,925	38,487	63
Muskogee	1,220,070	733,926	864,648	1,511,674	1,734,209	1,426,509	1,473,437	1,588,093	972,083	844,981	12,369,630	12
Noble	98,441	96,217	53,832	72,922	96,263	138,874	51,456	20,702	48,663	102,148	779,518	46
Nowata	-	6,663	6,372	6,235	5,561	12,977	29,764	24,535	2,919	2,547	97,573	62
Okfuskee	122,040	123,792	124,805	-	-	223,210	-	208,658	217,848	115,563	1,135,916	42
Oklahoma	14,184,740	13,464,757	13,346,575	9,102,141	2,996,312	3,679,944	4,132,435	3,998,679	4,628,101	5,448,365	74,982,049	1
Okmulgee	96,720	231,791	82,889	190,936	199,806	166,425	74,809	42,378	23,263	33,734	1,142,751	41
Osage	63,576	50,564	30,261	17,733	37,275	36,791	39,137	115,242	125,722	290,248	806,549	45

Continued

**Figure 8. (Continued) Exemptions by County and Tax Year**

County	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	10-Year Total	Rank
Ottawa	87,513	121,838	177,554	259,580	233,310	185,785	90,289	281,355	258,123	262,347	1,957,694	35
Pawnee	-	-	-	-	-	-	-	-	-	-	0	64
Payne	581,878	207,066	283,939	410,228	192,279	87,256	82,454	54,611	51,208	48,687	1,999,606	33
Pittsburg	4,794,136	4,806,307	4,966,031	5,175,782	4,930,162	180,994	140,433	97,238	20,002	41,224	25,152,309	3
Pontotoc	11,672	184,615	200,112	183,252	173,542	162,024	69,021	113,246	115,136	113,980	1,326,600	38
Pottawatomie	59,820	50,974	52,572	74,820	31,519	29,918	1,991	18,666	18,664	56,208	395,152	54
Pushmataha	-	-	-	-	158,419	161,483	138,176	132,014	121,673	-	711,765	47
Roger Mills	-	-	-	-	-	1,510,962	3,072,612	3,689,570	6,123,280	6,166,238	20,562,662	5
Rogers	415,468	614,275	905,767	769,981	654,625	945,213	1,021,526	661,525	643,599	783,765	7,415,744	18
Seminole	95,436	59,482	52,330	50,703	593,776	735,096	657,730	700,469	679,831	90,011	3,714,864	24
Sequoyah	135,093	138,290	17,221	10,356	125,029	3,679	-	-	-	-	429,668	53
Stephens	501,503	17,245	13,652	22,454	37,621	60,192	39,967	94,987	100,444	402,935	1,291,000	40
Texas	60,401	42,481	17,121	54,006	227,446	321,050	296,351	278,610	230,658	2,011,598	3,539,722	25
Tillman	-	-	-	-	-	-	-	-	-	-	0	64
Tulsa	10,489,778	10,229,771	9,577,441	5,914,934	6,261,519	6,966,414	5,857,464	6,095,320	5,780,357	6,845,487	74,018,485	2
Wagoner	4,479,525	4,578,445	3,229,818	14,737	-	-	44,193	76,381	63,970	91,899	12,578,968	11
Washington	13,213	9,585	9,355	4,006	13,157	50,583	12,090	2,702	7,932	79,600	202,223	59
Washita	-	-	174,976	162,169	156,238	160,533	158,513	-	-	1,450,584	2,263,013	31
Woods	118,099	112,938	-	-	2,539	2,524	17,543	17,022	17,049	626,806	914,520	43
Woodward	348,668	374,052	375,183	371,317	373,528	-	160,002	4,173,339	4,397,480	4,015,086	14,588,655	7
Total	50,802,579	49,667,975	52,302,702	44,825,245	40,262,724	36,137,567	33,482,080	37,828,753	46,289,325	64,356,276	455,955,226	

Source: Oklahoma Tax Commission and RegionTrack

Fourteen counties did not use the ad valorem exemption the past ten years – Alfalfa, Choctaw, Cimarron, Cotton, Greer, Harmon, Haskell, Jefferson, Johnston, Kingfisher, Lincoln, McIntosh, Pawnee, and Tillman. These counties tend to have very low shares of manufacturing activity. They are also relatively small counties that collectively represent only about 4.2% of state population and 3.5% of state personal income.

In the state’s metropolitan areas, usage at the county level is highly mixed. Among Oklahoma City metro area counties, Oklahoma, Canadian, and Cleveland have been large and consistent users of the exemption. Grady has become a large user only in the past few years. Logan and McClain have not used the exemption in recent years. Lincoln County has not used the exemption the past decade.

Among Tulsa metro counties, Tulsa, Rogers, and Creek are large and frequent users. Wagoner has used the exemption only minimally the past 7 years, while Osage and Okmulgee are modest users. Pawnee County did not use the exemption the past decade.

Finally, Comanche County (Lawton metro area) is a large and steady user.<sup>20</sup>

**Geographic Concentration.** A potential concern with the exemption is whether its use is highly concentrated within certain counties or regions of the state. Figure 9 illustrates the distribution of total exemptions across the counties the past decade and compares this activity to various county-level measures of economic activity including population, total personal income, manufacturing employment, and manufacturing gross domestic product.

The data suggest that the ad valorem exemption has a clear rural tilt in two distinct ways. First, the 14 counties not using the exemption are all non-metro or highly rural. Second, the highest shares of use

relative to other economic measures are found among the non-metro counties. There is a distinct group of ten counties whose use of the exemptions is highest relative to the share of the state economy they comprise. These high-share counties include Pittsburg, Kay, Roger Mills, Carter, Woodward, Custer, Mayes, Bryan, Garvin, and Harper. All ten of these counties are ranked among the top 17 counties as measured by total exemptions granted. The top three counties by concentration, Pittsburg, Kay, and Roger Mills, all received 4.5-5.5% of the total exemptions granted the past decade, but account for only roughly 1% or less of both state personal income and population.

Conversely, the state's major metropolitan counties tend to underutilize the exemption relative to their share of income and population. The state's two largest counties, Oklahoma and Tulsa, have both received a relatively small share of the total exemptions offered the past decade based on all four economic measures. Interestingly, the three largest counties in the state – Oklahoma, Tulsa, and Cleveland – generally rank as having the lowest relative use among all counties. Oklahoma County received 16.4% of the total exemptions the past decade but is home to 22.2% of state personal income and 19.6% of state population. Tulsa County received 16.2% of all incentives in the period, a share well below its 19.9% share of state personal income but equal to its 16.2% of state population. However, Tulsa County is also home to 27.2% of the state's manufacturing jobs and produces 29.9% of total state manufacturing GDP. Cleveland County has received only 0.9% of total exemptions the past decade but has 7.0% of the state's population and 6.7% of total state personal income.

Along with the metro areas, another group of nine counties use the exemption regularly but rank as having extremely low usage of the exemption relative to the size of the county. These counties with a low utilization rate include Cherokee, Creek, Le Flore, Osage, Payne, Pottawatomie, Rogers, Stephens, and Washington.

Across all 63 counties that offered the incentive the past decade, Figure 9 suggests that 41 of the counties used the incentive in approximate proportion to its size based on the four economic measures. Only ten counties used a relatively high share while 12 counties used a relatively low share. **Overall, we consider there to be fairly balanced usage of the incentive across the state the past decade, especially considering the concentration of large manufacturers and wind power in a relatively small number of counties.** As expected, nearly all of the top 15 counties with the highest number of manufacturing jobs are among the greatest users of the exemption.

**Figure 9. Relative Concentration of Exemptions by County (2004-2013)**

County	Total					Share of Total				
	Exemptions (2004-2013)	Personal Income	Population	Manufact. Jobs	Manufact. GDP	Exemptions (2004-2013)	Personal Income	Population	Manufact. Jobs	Manufact. GDP
Adair	\$1,832,231	516.4	22,194	1,169	159.5	0.4%	0.3%	0.6%	0.9%	0.8%
Alfalfa	0	257.0	5,847	37	2.9	0.0%	0.2%	0.2%	0.0%	0.0%
Atoka	286,851	418.2	13,898	127	15.5	0.1%	0.3%	0.4%	0.1%	0.1%
Beaver	625,718	260.4	5,566	63	6.0	0.1%	0.2%	0.1%	0.0%	0.0%
Beckham	535,840	1,079.1	23,637	480	62.7	0.1%	0.7%	0.6%	0.4%	0.3%
Blaine	458,844	369.2	9,720	436	60.6	0.1%	0.2%	0.3%	0.3%	0.3%
Bryan	10,501,012	1,386.5	44,244	1,061	119.2	2.3%	0.9%	1.1%	0.8%	0.6%
Caddo	6,604,156	939.0	29,594	80	6.1	1.4%	0.6%	0.8%	0.1%	0.0%
Canadian	13,378,303	5,346.1	126,123	4,139	636.4	2.9%	3.3%	3.3%	3.0%	3.0%
Carter	19,190,606	2,063.1	48,491	3,393	606.2	4.2%	1.3%	1.3%	2.5%	2.9%
Cherokee	323,493	1,521.4	48,017	186	20.9	0.1%	0.9%	1.2%	0.1%	0.1%
Choctaw	0	469.0	15,045	120	12.0	0.0%	0.3%	0.4%	0.1%	0.1%
Cimarron	0	98.6	2,335	20	2.0	0.0%	0.1%	0.1%	0.0%	0.0%
Cleveland	4,045,103	10,748.9	269,340	4,231	611.8	0.9%	6.7%	7.0%	3.1%	2.9%
Coal	557,092	185.0	5,867	45	3.1	0.1%	0.1%	0.2%	0.0%	0.0%
Comanche	13,926,043	5,036.8	124,937	3,554	749.2	3.1%	3.1%	3.2%	2.6%	3.5%
Cotton	0	247.7	6,152	5	0.5	0.0%	0.2%	0.2%	0.0%	0.0%
Craig	233,655	513.9	14,672	411	45.8	0.1%	0.3%	0.4%	0.3%	0.2%
Creek	2,937,185	2,538.2	70,470	3,524	544.0	0.6%	1.6%	1.8%	2.6%	2.6%
Custer	14,408,030	1,239.7	29,377	973	165.2	3.2%	0.8%	0.8%	0.7%	0.8%
Delaware	886,092	1,378.9	41,377	780	81.6	0.2%	0.9%	1.1%	0.6%	0.4%
Dewey	3,223,644	244.0	4,844	129	29.8	0.7%	0.2%	0.1%	0.1%	0.1%
Ellis	222,850	214.5	4,170	7	1.0	0.0%	0.1%	0.1%	0.0%	0.0%
Garfield	8,925,734	2,871.4	62,267	2,607	333.8	2.0%	1.8%	1.6%	1.9%	1.6%
Garvin	10,364,937	1,068.9	27,334	1,054	183.3	2.3%	0.7%	0.7%	0.8%	0.9%
Grady	6,031,802	1,888.5	53,685	1,551	154.5	1.3%	1.2%	1.4%	1.1%	0.7%
Grant	572,609	234.8	4,528	10	1.3	0.1%	0.1%	0.1%	0.0%	0.0%
Greer	0	190.1	6,171	45	4.1	0.0%	0.1%	0.2%	0.0%	0.0%
Harmon	0	98.3	2,869	24	0.2	0.0%	0.1%	0.1%	0.0%	0.0%
Harper	7,685,371	139.0	3,813	22	2.2	1.7%	0.1%	0.1%	0.0%	0.0%
Haskell	0	450.0	13,052	60	7.8	0.0%	0.3%	0.3%	0.0%	0.0%
Hughes	2,854,848	438.6	13,823	201	20.3	0.6%	0.3%	0.4%	0.1%	0.1%
Jackson	2,159,011	966.3	26,088	819	101.7	0.5%	0.6%	0.7%	0.6%	0.5%
Jefferson	0	165.6	6,432	59	4.4	0.0%	0.1%	0.2%	0.0%	0.0%
Johnston	0	377.7	10,990	406	39.2	0.0%	0.2%	0.3%	0.3%	0.2%
Kay	25,019,844	1,801.3	45,633	2,092	303.0	5.5%	1.1%	1.2%	1.5%	1.4%
Kingfisher	0	680.9	15,276	449	65.0	0.0%	0.4%	0.4%	0.3%	0.3%
Kiowa	4,729,281	323.6	9,341	187	31.4	1.0%	0.2%	0.2%	0.1%	0.1%
Latimer	2,939,674	430.9	10,775	343	38.8	0.6%	0.3%	0.3%	0.3%	0.2%
Le Flore	189,803	1,469.7	49,774	1,465	146.5	0.0%	0.9%	1.3%	1.1%	0.7%
Lincoln	0	1,149.8	34,351	765	88.3	0.0%	0.7%	0.9%	0.6%	0.4%
Logan	1,986,222	1,859.0	44,422	350	53.5	0.4%	1.2%	1.2%	0.3%	0.3%
Love	1,806,728	424.0	9,742	126	10.2	0.4%	0.3%	0.3%	0.1%	0.0%
McClain	2,741,419	1,687.2	36,511	224	31.0	0.6%	1.0%	0.9%	0.2%	0.1%
McCurtain	7,307,065	991.4	33,065	2,672	300.8	1.6%	0.6%	0.9%	2.0%	1.4%
McIntosh	0	658.4	20,493	96	11.6	0.0%	0.4%	0.5%	0.1%	0.1%
Major	176,097	335.0	7,683	102	17.6	0.0%	0.2%	0.2%	0.1%	0.1%
Marshall	1,325,167	517.2	15,988	1,224	143.4	0.3%	0.3%	0.4%	0.9%	0.7%
Mayes	10,547,743	1,312.0	40,804	2,611	404.5	2.3%	0.8%	1.1%	1.9%	1.9%
Murray	38,487	542.4	13,712	263	28.1	0.0%	0.3%	0.4%	0.2%	0.1%
Muskogee	12,369,630	2,474.7	70,303	3,807	614.5	2.7%	1.5%	1.8%	2.8%	2.9%
Noble	779,518	417.5	11,446	1,401	192.8	0.2%	0.3%	0.3%	1.0%	0.9%
Nowata	97,573	333.3	10,555	278	37.5	0.0%	0.2%	0.3%	0.2%	0.2%
Okfuskee	1,135,916	326.0	12,377	116	12.4	0.2%	0.2%	0.3%	0.1%	0.1%
Oklahoma	74,982,049	35,886.8	755,245	25,178	3891.9	16.4%	22.2%	19.6%	18.5%	18.4%
Okmulgee	1,142,751	1,253.2	39,438	1,447	256.3	0.3%	0.8%	1.0%	1.1%	1.2%
Osage	806,549	1,910.5	47,987	415	52.9	0.2%	1.2%	1.2%	0.3%	0.3%

Continued

**Figure 9. (Continued) Relative Concentration of Exemptions by County (2004-2013)**

County	Total					Share of Total				
	Exemptions (2005-2014)	Personal Income	Population	Manufact. Jobs	Manufact. GDP	Exemptions (2005-2014)	Personal Income	Population	Manufact. Jobs	Manufact. GDP
Ottawa	1,957,694	1,107.4	32,245	1,117	141.7	0.4%	0.7%	0.8%	0.8%	0.7%
Pawnee	0	539.7	16,513	127	16.7	0.0%	0.3%	0.4%	0.1%	0.1%
Payne	1,999,606	2,965.0	79,066	1,657	276.1	0.4%	1.8%	2.1%	1.2%	1.3%
Pittsburg	25,152,309	1,695.7	44,703	1,374	257.3	5.5%	1.0%	1.2%	1.0%	1.2%
Pontotoc	1,326,600	1,434.7	37,992	1,318	163.1	0.3%	0.9%	1.0%	1.0%	0.8%
Pottawatomie	395,152	2,625.7	71,158	2,676	393.1	0.1%	1.6%	1.8%	2.0%	1.9%
Pushmataha	711,765	362.4	11,233	113	15.1	0.2%	0.2%	0.3%	0.1%	0.1%
Roger Mills	20,562,662	187.6	3,743	21	1.2	4.5%	0.1%	0.1%	0.0%	0.0%
Rogers	7,415,744	3,560.8	89,044	5,918	960.8	1.6%	2.2%	2.3%	4.3%	4.5%
Seminole	3,714,864	888.8	25,426	1,113	141.5	0.8%	0.5%	0.7%	0.8%	0.7%
Sequoyah	429,668	1,256.9	41,218	127	15.8	0.1%	0.8%	1.1%	0.1%	0.1%
Stephens	1,291,000	2,063.3	44,919	2,535	397.3	0.3%	1.3%	1.2%	1.9%	1.9%
Texas	3,539,722	815.8	22,081	106	16.7	0.8%	0.5%	0.6%	0.1%	0.1%
Tillman	0	257.8	7,711	227	21.4	0.0%	0.2%	0.2%	0.2%	0.1%
Tulsa	74,018,485	32,215.7	622,409	37,106	6320.0	16.2%	19.9%	16.2%	27.2%	29.9%
Wagoner	12,578,968	2,715.2	75,700	1,809	258.5	2.8%	1.7%	2.0%	1.3%	1.2%
Washington	202,223	2,347.0	51,577	666	104.3	0.0%	1.5%	1.3%	0.5%	0.5%
Washita	2,263,013	462.8	11,678	90	6.1	0.5%	0.3%	0.3%	0.1%	0.0%
Woods	914,520	413.2	9,041	182	10.6	0.2%	0.3%	0.2%	0.1%	0.1%
Woodward	14,588,655	946.1	21,221	482	86.6	3.2%	0.6%	0.6%	0.4%	0.4%
Total	\$455,955,226	161,607.4	3,850,568	136,183	21130.9	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Measures of personal income, population, manufacturing jobs, and manufacturing gross domestic product (GDP) are for 2013.  
Source: Oklahoma Tax Commission, Bureau of Economic Analysis, Bureau of Labor Statistics, Census Bureau, and RegionTrack

## Firms Receiving Exemptions

Appendix 1 contains a listing of the individual firms receiving an ad valorem exemption in the past five tax years. After combining exemptions that accrued to the same firm in a given tax year and reconciling name changes, mergers, and acquisitions, we identified 244 unique firms in the period.<sup>21</sup> The listings in Appendix 1 are separated into two categories - manufacturing<sup>22</sup> (221 firms) and non-manufacturing (23 firms - i.e. wind power, data centers, and distribution centers). The number of exemptions, value of total exemptions, and estimated value of assets covered by the exemption for each firm are included in the tables.

Each of the 221 manufacturing firms received an average of approximately \$582,800 in exemptions over the past five years. Fifteen manufacturing firms received a total of more than \$2.5 million in exemptions the past five years, including Advance Pierre Foods (\$3.75 million), Devon Gas (\$5.98 million), Goodyear (\$3.77 million), Georgia Pacific (\$4.13 million), Holly Refining (\$7.19 million), Kimberly Clark (\$3.94 million), Nestle Purina (\$3.33 million), OK Procure Management (\$4.54 million), Phillips 66 (\$9.86 million), Quad Graphics (\$6.02 million), Sigma Processed Meats (\$2.69 million), Spirit Aerosystems (\$3.33

**The top fifteen manufacturing firms received a combined \$76.5 million in exemptions the past five years, but maintained new capital investments averaging \$1.5 billion in exchange for the exemptions.**

million), Terra Intl. (\$4.97 million), Valero Refining (\$6.7 million), and Wynnewood Refining (\$6.29 million). These firms are generally well-known within the state, and many are among the state's largest employers. Some have received the exemption during much of the exemption's nearly 30-year life. While these fifteen manufacturing firms received a combined \$76.5 million in exemptions in the period, they made new capital investments averaging \$1.5 billion in exchange for the exemptions. The total value of the exemption to these firms was equal to 5.24% of the average investment they made across the five-year period.

**Exemptions tend to be much larger on average for non-manufacturing firms.** The 23 unique non-manufacturing firms in Appendix 1 received an average of \$3.9 million the past five years, more than six times the amount received by an average manufacturer.

**Wind power producers received the largest average exemptions among non-manufacturing firms.** The 12 wind power exemptions averaged \$6.2 million the past five years. The largest wind power exemption recipient in the period is Next Era Energy with \$18.8 million. Eight other wind power firms received exemptions of more than \$3 million in the period including Red Hills Wind Project (\$10.27 million), Blue Canyon Wind (\$9.47 million), CPV Keenan II Renewable Energy (\$7.77 million), Mission Wind (\$5.86 million), Canadian Hills Wind (\$4.23 million), Chisholm View Wind (\$4.15 million), Taloga Wind (\$3.22 million), and Rocky Ridge Wind (\$2.53 million).

**Three data centers received exemptions averaging \$3.3 million the past five years.** Google received exemptions totaling \$6.0 million, HP Enterprises received \$3.0 million, and EDS Information Services received \$1.1 million in the period.

**The eight distribution centers received much more modest exemptions the past five years, averaging only \$646,400 per firm.** This is slightly more than the average received by manufacturers and trails well behind wind power and data centers. Roughly half of the total exemptions to distribution centers went to Associated Wholesale Grocer (\$2.43 million). Dollar General (\$872,231) is the only other distribution center to receive more than \$750,000 in exemptions in the period.

## **Manufacturing's Share of Exemptions**

In the remainder of the report, we shift the focus of the analysis to the manufacturing sector. Figure 10 provides detailed information on exemptions provided to manufacturing firms the past five years. The small number of research and development firms receiving exemptions are included to maintain consistency with the practice of the Tax Commission. Distribution centers, data centers, and wind power firms are excluded from the analysis.

In 2013, the latest year of data available, a total of 142 unique manufacturing firms located in 44 counties were approved for a total of 361 exemptions in years 1-5 of their life with a total value of \$27.3 million. The average exemption to a manufacturing firm in any given year was worth \$75,735. These exemptions were tied to a total of \$2.4 billion in underlying investment in structures and equipment initially made between 2009 and 2013. The exemptions remain heavily tilted toward those currently in years 1 through 3 (post-recession), which account for more than 85% of the total exemptions granted in 2013.

Again, first year exemptions dictate the overall trend going forward. In 2013, 111 first-year exemptions totaling \$7.9 million were awarded to manufacturers in return for \$689.9 million in upfront capital investments in structures and equipment. In the full five-year period, manufacturers received an average of 89 year-1 exemptions with an average value of \$6.6 million. This represents 85% of the total number of exemptions granted across all industries but only 46% of the total value.

After slowing considerably in the recent recession, the number of first-year exemptions granted to manufacturers increased considerably in 2012 and 2013, to 104 and 111 exemptions, respectively. This is well above the low of 66 first-year exemptions granted in 2010. First-year exemptions rebounded in value to roughly \$8 million annually in both 2012 and 2013, from a low of \$4.5 million in 2010.

**Figure 10. Exemptions by Tax Year and Exemption Year – Manufacturing Firms**

Tax Year		Exemption Year					Total
		1	2	3	4	5	
2009	# of Exemptions	97	101	91	85	77	451
	Total Exemption Amount	5,117,763	5,582,989	9,029,847	4,662,244	3,317,883	27,710,726
	Avg. Exemption Amount	52,760	55,277	99,229	54,850	43,089	61,443
	Total Asset Value	452,653,946	500,787,096	777,799,172	436,828,014	305,059,206	2,473,127,434
	Avg. Asset Value	4,666,536	4,958,288	8,547,244	5,139,153	3,961,808	5,483,653
2010	# of Exemptions	66	63	58	75	68	330
	Total Exemption Amount	4,513,174	3,970,748	4,320,179	7,579,846	3,355,997	23,739,944
	Avg. Exemption Amount	68,381	63,028	74,486	101,065	49,353	71,939
	Total Asset Value	388,496,068	360,801,459	393,042,845	655,013,422	308,324,429	2,105,678,222
	Avg. Asset Value	5,886,304	5,727,007	6,776,601	8,733,512	4,534,183	6,380,843
2011	# of Exemptions	69	63	52	51	60	295
	Total Exemption Amount	7,402,191	4,230,304	3,552,257	3,883,848	6,509,398	25,577,998
	Avg. Exemption Amount	107,278	67,148	68,313	76,154	108,490	86,705
	Total Asset Value	671,038,149	363,203,032	321,108,881	350,592,589	563,094,041	2,269,036,692
	Avg. Asset Value	9,725,191	5,765,127	6,175,171	6,874,364	9,384,901	7,691,650
2012	# of Exemptions	104	62	37	51	51	305
	Total Exemption Amount	8,133,245	6,876,050	3,339,661	3,202,782	2,889,376	24,441,114
	Avg. Exemption Amount	78,204	110,904	90,261	62,800	56,654	80,135
	Total Asset Value	701,286,008	623,122,764	284,990,406	296,718,834	272,797,805	2,178,915,816
	Avg. Asset Value	6,743,135	10,050,367	7,702,443	5,818,016	5,348,977	7,143,986
2013	# of Exemptions	111	99	60	36	55	361
	Total Exemption Amount	7,936,015	7,446,046	6,370,686	3,049,888	2,537,564	27,340,199
	Avg. Exemption Amount	71,496	75,213	106,178	84,719	46,138	75,735
	Total Asset Value	689,785,807	641,445,089	573,416,595	260,624,793	220,070,871	2,385,343,155
	Avg. Asset Value	6,214,287	6,479,243	9,556,943	7,239,578	4,001,289	6,607,599

Source:

## Profile of Manufacturing Exemptions by Industry

Exemptions have been granted to most types of manufacturers in recent years. Exemptions issued to manufacturers in 2013 are detailed by industry in Figure 11. The largest number of exemptions were awarded to food and beverage and tobacco products (62); fabricated metal products (53); machinery (48); petroleum and coal products (29) - largely refineries; electrical equipment (27); and other transportation equipment (27) - largely aerospace and aviation firms.

These categories closely align with the strong presence of the food manufacturing, oil and gas, and aviation sectors in Oklahoma. **These high concentrations are also closely aligned with the state's overall**



economic development strategy to pursue targeted economic ecosystems in energy, aerospace and defense, and agriculture and biosciences.<sup>23</sup>

By dollar value, the largest incentives in 2013 were awarded to petroleum and coal products manufacturers (mostly refineries). These 29 firms received a total of \$8.9 million in 2013 (average of \$307,000 each), nearly one-third of the total exemptions provided to manufacturers. Eight other sectors received more than \$1 million in 2013, including food and beverage and tobacco products (\$3.0 million); motor vehicles, bodies, trailers, and parts (\$2.3 million); chemical products (\$2.1 million); fabricated metal products (\$2.1 million); paper products (\$1.7 million); other transportation equipment (\$1.2 million); electrical equipment, appliances, and components (\$1.0 million); and ambulatory health care services (\$1.0 million).

There has been a clear surge in the number of exemptions the past three years (exemptions in years 1-3 of their life) in the three largest sectors as measured by number of exemptions – food and beverage, fabricated metals, and machinery. There is also a sizeable increase in the value of exemptions provided to petroleum and coal products (refining) in years 1-3 of the exemption. These sectors will continue to dominate the manufacturing activity generated by the exemption in the next few years.

**Figure 11. Exemptions – Manufacturing Firms by NAICS Sector (2013 Tax Year)**

Includes R&D firms and excludes data centers, distribution centers, and wind energy

NAICS Sector	Number of Exemptions						Exemption Amount (\$)					Total
	Exemption Year					Total	Exemption Year					
	1	2	3	4	5		1	2	3	4	5	
<i>Manufacturing</i>												
Chemical products	5	7	4	4	1	21	391,634	182,599	1,362,143	164,059	7,896	2,108,331
Computer & electronic products	3	3	1	1	2	10	76,006	760,915	4,070	3,224	53,536	897,751
Electrical equip., appl., & compon.	7	8	5	1	6	27	352,198	429,474	92,510	76,712	53,612	1,004,506
Fabricated metal products	15	18	10	3	7	53	809,874	526,544	308,168	172,437	236,981	2,054,004
Food and beverage & tobacco prod.	18	15	11	8	10	62	782,806	1,091,482	461,153	200,065	461,387	2,996,893
Machinery	20	13	7	1	7	48	456,207	150,473	117,890	9,425	121,092	855,087
Miscellaneous manufacturing	-	-	1	-	-	1	-	-	33,104	-	-	33,104
Motor veh., bodies, trailers, & parts	9	7	3	1	2	22	559,899	1,648,117	72,031	17,868	22,032	2,319,947
Nonmetallic mineral products	7	4	2	1	4	18	419,046	68,130	215,467	25,227	70,677	798,547
Other transportation equipment	9	8	2	5	3	27	306,300	206,519	113,778	204,343	355,140	1,186,080
Paper products	2	3	3	3	4	15	478,699	256,021	438,705	206,798	284,472	1,664,695
Petroleum & coal products	9	7	7	3	3	29	2,781,892	2,063,045	2,983,062	794,394	277,878	8,900,271
Plastics & rubber products	2	2	1	3	-	8	40,347	22,844	41,435	47,845	-	152,471
Primary metals	3	3	3	-	4	13	42,784	33,937	127,170	-	73,370	277,261
Printing & related support activities	1	1	-	-	1	3	405,098	5,946	-	-	490,767	901,811
Wood products	1	-	-	1	-	2	33,225	-	-	108,575	-	141,800
<i>Services</i>												
Ambulatory health care services	-	-	-	1	-	1	-	-	-	1,018,916	-	1,018,916
Prof., scientific, & technical services	-	-	-	-	1	1	-	-	-	-	28,724	28,724
<b>Total</b>	<b>111</b>	<b>99</b>	<b>60</b>	<b>36</b>	<b>55</b>	<b>361</b>	<b>\$7,936,015</b>	<b>\$7,446,046</b>	<b>\$6,370,686</b>	<b>\$3,049,888</b>	<b>\$2,537,564</b>	<b>\$27,340,199</b>

Source: Oklahoma Tax Commission - Ad Valorem Division and Bureau of Economic Analysis

## VI. Evaluating the Economic Effectiveness of the Exemption

The economic effectiveness of the ad valorem tax exemption has undergone only limited evaluation over the years. We are aware of only two public reviews of the program conducted over its life. This section provides an evaluation of these reviews followed by a detailed examination of the many economic channels through which the exemption exerts influence on the Oklahoma economy.

### Prior Reviews of the Program

***Dauffenbach and Warner.*** The first known review of the exemption is a 2004 report by Dauffenbach and Warner<sup>24</sup> that seeks to model the economic impacts generated by both the ad valorem tax exemption and the state's Quality Jobs Act. The report provides an estimate of both direct and spillover impacts from the ad valorem exemption program in the FY1996-FY2003 period.

The basic modeling approach attributes the economic impact from the exemption to added output at firms receiving the exemption. The amount of the exemption is first divided by the property tax rate (1% average) to form an estimate of new capital investment. This investment is then multiplied by the U.S. ratio of sales to investment at the industry level to estimate new sales originating from the exemption. This added sales amount is then used within an IMPLAN input-output model of Oklahoma to measure the expected impacts on employment, labor income, and taxes generated by firms receiving the exemption. No other sources of economic benefit from the exemption are discussed in the report.

The findings suggest that added output at firms receiving the exemptions produced average annual benefits to the state of \$364.7 million in labor income and 11,370 in direct and spillover jobs statewide. State and local taxes increased by an average of \$47.5 million annually. The impacts were then reduced by 40% to reflect the impact of corporate taxation on the exemption benefits. The report concludes that the exemption has produced substantial capital investment in the state but is unlikely to produce enough added tax revenue to cover the direct cost of the exemption to the state (\$38.4 million in FY2003).

These findings have been widely viewed as highly critical of the exemption's potential as an all-around effective economic development incentive.<sup>25</sup> The report also viewed the exemption as being largely inferior to the Quality Jobs Act based on results from an evaluation using a similar framework.

We find that there are several critical issues within the modeling framework used in the report that preclude it from providing a thorough overall evaluation of the exemption. Concerns with the methodology include the following:

1. The estimates do not include the direct impact of the substantial upfront investments made by firms receiving the exemption. Firms received \$38.4 million in exemptions in 2002 and, in return, made estimated upfront investments of at least \$3.84 billion in structures and equipment in prior years. This activity generated significant construction activity and purchases of equipment within the state. These transactions include massive new production facilities, major expansions of existing facilities, and numerous purchases of new production equipment. These substantial impacts are not considered in the analysis. They must first be reduced to only that share of the activity that takes place within the state, but should undoubtedly be included.

2. A 40% across-the-board deduction was unnecessarily applied to the final economic impact estimates to reflect the impact of corporate taxation on the firms receiving the exemption. This reduction in overall economic impact is fundamentally misapplied in two important ways. First, any reduction of this type is largely only relevant when calculating the net benefit to the *firms* receiving the exemption, not the benefit accruing to the *state* as these firms increase their investment and output. The benefit to the state is determined upfront by the amount of new investment made by participating firms, and this amount was determined before an exemption was granted. Simply applying a discount equal to the U.S. marginal corporate tax rate of 40% to the benefits is mostly arbitrary and inconsistent with typical firm behavior. The exemption as structured is a cost *avoided* by the firm and not received as a cash flow in an isolated financial transaction that directly raises taxable income, and in turn taxes. It instead allows these firms to lower the effective cost of substantial investments in structures and equipment that produce increased output and sales. It also ignores any tax effects from leverage financing used within these transactions. There is simply no reasonable way of predicting, or isolating, the net tax impact on a firm of avoiding a cost. In general, the 40% reduction applied to the results almost certainly produces a gross underestimate of the benefits to the state.
3. It is unclear what exemption amount was used to form the estimate of added sales in the analysis. The underlying estimate of added sales holds the key to calculating the income and employment impacts from the exemption. Pinpointing this amount is critical because it determines both the size of the benefits and the size of the costs. The general approach used in calculating this amount is described in basic terms within the report, but the final amount used is not stated. Further clouding the results is that the data tables (Tables 2.1, 2.2, and 2.3) indicate that the exemption amount used as the basis for computing the economic impact estimates is the annual average of the exemption from FY1996 to FY2003. However, this is not specified in the report text. Instead, the body of the report lists \$38.4 million as the cost of the program and suggests that “Table 2.1 shows the estimated impacts of the \$38.4 million in property tax exemptions...” By our calculations, the annual average in the period is only \$19.1 million. This is only half the reported \$38.4 million cost of the program used to evaluate the results. As an example of why this matters, a quick IMPLAN estimate using the same basic inputs - \$38.4 million as the exemption, a 1% tax rate producing \$3.84 billion in new investment (divide), and a capital-to-output ratio of 2.5 that equates to added annual sales of \$9.6 billion (multiply) - produces estimates of employment and income that are 5-8 times higher than reported. The tax impacts are at least twice as large as those reported.
4. There is a mismatch between the actual program years and the years in which the costs attributed to the program are incurred. The program should be evaluated using clear first-year recipient groups over the five years in which the group is eligible to receive the exemption. In other words, the total cost attributed to the 2002 exemptions in the report includes payments tied to capital investments that were made in the five years from 1998 to 2002. The result is an ‘annual-average’ approach that might produce a quick ‘ballpark’ estimate, but it grossly oversimplifies the multi-year structure of the exemption over time. Instead, the cost of the year 1 exemptions from 2002 should be evaluated relative to the costs and benefits realized in the following five-year period that are directly attributable only to first-year recipients in 2002.

***Incentive Review Committee.*** The second review is a 2006 report by the state's Incentive Review Committee. The Committee prepared a broad profile of firms receiving exemptions in recent years and examined whether the economic gain to the state can be quantified in terms of jobs, wages, investment, and other economic criteria. Specifically, the Committee provided a broad test of hiring effectiveness by comparing changes in actual employment and payroll at the firms receiving exemptions to changes in actual employment at manufacturing firms not receiving exemptions.

The Committee concluded that the exemption had been successful in attracting firms to the state and in encouraging existing firms to expand. However, the results for employment and payroll were not positive. Using OESC data on employment and payroll for first-year filers for the exemption in 2001, the Committee reported decreased hiring and payroll between 2001Q2 and 2005Q4 relative to those manufacturing firms in the state not receiving the exemption. This report to the Legislature has served as additional evidence that the manufacturer's exemption is not producing in terms of employment and payroll gains.

Again, we have a number of reservations as to whether this evaluation provides a useful test of the economic success of the exemption. There are several concerns:

1. The definition used in tabulating the employment and payroll results seems to include *statenide* employment at the firms in question, not just employment at the *facility* for which the exemption was approved. Firms receiving the exemption are under no obligation to maintain employment levels, and payroll levels must only be maintained at the facilities tied to the exemption. Some, or all, of the reported decline in hiring and payroll may have taken place at facilities unrelated to the exemption or in industries unrelated to the one tied to the incentive. Without facility-level and firm-level data, it is impossible to know the degree to which this affects the outcome.
2. The period used to evaluate the firms starts well after the period used to calculate the baseline payroll number for use in granting and reapproving the exemption. Baseline payroll is calculated using the calendar year immediately preceding the year for which the application is made. The approach used omitted the key period in which salary was expected to increase. For the 2001 cohort, calendar year 2000 is the period from which payroll increases are measured and includes the period where the initial hiring increase is expected to take place. Hence, a better approach would be to start the measurement before firms receive the exemption, not well after the exemption begins.
3. The overall evaluation of employment and payroll gains includes firms that dropped out of the program long before 2005Q4. Fluctuations in the number of approved applications are large during a recession, which includes the time frame used in the evaluation. During the recession, many firms likely received application denials or opted not to file an application and dropped out of the program. In short, all firms in the 2001 cohort were evaluated over the full time period, even though many may have no longer participated in the program.
4. The evaluation used only a single cohort group in a single time-period, from 2001Q2 to 2005Q4, to evaluate payroll and employment changes. The evaluation period contains a prolonged employment recession in which manufacturing was hit especially hard. Year-by-year results,

preferably only for those firms with active exemptions, would be much more helpful in understanding the behavior of these firms.

5. The evaluation combined the 51% of the incentives received by non-manufacturing firms (electric power, wind power, distribution centers, and data processors) with the 49% of incentives received by manufacturing firms when evaluating payroll and employment. The combined firms were then compared to the overall manufacturing sector, as well as the manufacturing sector with the 5-year exemption firms subtracted. The comparison of non-manufacturing firms to the manufacturing sector is problematic and potentially misleading. We do not know the relative share of employment and payroll at the non-manufacturing firms, or the relative influence this may have on the results.
6. The employment and wage results used to evaluate the program are in no way representative of the relative size of exemptions offered to each firm. In general, a very small exemption issued to a very large firm should be expected to produce no greater economic activity than a very small exemption given to a very small firm.<sup>26</sup> In other words, the larger the exemption given, the larger the economic activity expected in return. Some degree of weighting by exemption size would seem warranted in this type of ex-post evaluation using actual payroll and employment data.
7. Possibly most important, layoffs at a single firm could explain much of the performance weakness found for the 2001 cohort in the period. Three firms with very large plants in the state – Dayton Tire, General Motors, and Lucent – experienced extreme economic distress following the recession and downsized and eventually closed major plants during the evaluation period and into 2006. All three of these firms are part of the 2001 cohort group evaluated by the Incentive Review Committee and could have easily played an outsized role in the data.

Although we point to limitations in the review provided by the Committee, the report largely reflects the difficulty faced in obtaining anything other than highly aggregated employment and payroll data on firms receiving the exemption. This includes information provided by the firms on the initial application as well as follow-up information over the five-year life of the exemption. Wage and employment information at the firm level is considered privileged and protected, and is generally not available from OESC for evaluation in detailed form, even by the Legislature. Verifying actual wage and salary data is the correct direction to proceed to determine the actual behavior of firms receiving exemptions, but it remains a difficult path under current law. There are also data reporting issues that make it difficult to identify the payroll at an individual facility receiving the exemption. Firms often combine employment data reports for multiple facilities and report them jointly.

The Incentive Review Committee made only two recommendations: 1) in the short-term, reimbursement needs to be tied to job growth; and 2) the exemption should be re-evaluated every 5 years, preferably by the Legislature, and accompanied by a sunset provision.

Both prior studies clearly noted the underlying uncertainty concerning the amount of activity tied to the exemption that would have taken place without the exemption. Undoubtedly some portion of the expected impact would have taken place without the tax incentive.

Both studies similarly discussed the increasingly competitive landscape for state and local business incentives and agreed that the incentive is needed to compete with other states. Wind power, in particular, was viewed as being highly sensitive to competing state incentives.

## Economic Channels - Tracking the 2009 Exemption Cohort

The full process through which the ad valorem exemption triggers economic impacts is much more detailed and complex than suggested in the two prior studies. The basic impact of the exemption is traced to an upfront capital investment in structures and equipment in exchange for reduced ad valorem taxes for up to five years. Firms pledge to increase and maintain a higher level of payroll and are expected to increase their production of goods and services. The county granting the exemption immediately receives added ad valorem tax revenue through reimbursements from the state and spends these funds locally. The ad valorem tax burden then slowly shifts back over time to the firms receiving the exemption.

To illustrate the full range of economic outcomes, we focus on the group of manufacturing firms receiving a first-year exemption in 2009 and evaluate them over the five-year life of the exemption. A summary of the exemptions received and investments made by these firms for each year of the life of the exemption is provided in Figure 10. The 2009 cohort provides a useful benchmark for several reasons:

1. This is the most recent cohort of manufacturers for which we have a full five-year history;
2. The five-year life of the exemption occurred during a challenging economic environment with recessionary conditions and a relatively slow recovery;
3. High numbers of application denials in the evaluation period will result in a conservative net economic impact estimate relative to a stronger operating environment; and
4. The total amount of 2009 exemptions is typical of the share of manufacturing sector activity benefitting from the exemption over the past decade.

We evaluate the range of economic outcomes beginning with the initial investment in structures and equipment and stretching through the expiration of the exemptions and the resumption of ad valorem tax payments by the firms. Again, firms classified as wind power, data centers, and distribution centers are not included in the analysis, as significant adjustments to the modeling framework would be needed to evaluate the expected impact of these firms.

***First-Year Exemptions Granted.*** For the 2009 tax year, 30 counties granted 97 first-year ad valorem tax exemptions to 82 manufacturers valued at \$5.1 million. The average first-year exemption was valued at \$52,760; each unique firm received an average of \$62,411. The largest exemption to a single firm is \$720,203 and the smallest \$2,390.

Twelve firms received exemptions exceeding \$100,000 while 24 firms received less than \$10,000. Five counties - Tulsa (25), Rogers (15), Oklahoma (9), Creek (5), and Mayes (5) - provided 59 of the 97 first-year exemptions. Twenty five additional counties provided the remaining 38 exemptions.

***Added Capital Investment in Structures and Equipment.*** In return for the exemptions, these 82 manufacturing firms made upfront capital investments totaling an estimated \$452.7 million in structures and equipment. Again, these expenditures include 1) construction of new buildings, 2) expansion or purchase of existing buildings, and 3) purchase or lease of machinery and equipment. The average investment was \$4.7 million per exemption, or \$5.5 million for each unique firm. Using information described earlier from county assessor websites, we estimate that construction totaled \$203.7

million (45% of the total); the purchase of existing buildings vacant for 12 months totaled \$22.6 million (5% of the total); and equipment purchases totaled \$226.3 million (50% of the total). While these shares are estimates, small variations in them are unlikely to sway the results significantly. Future data providing a more precise breakdown of these categories would help in producing a more accurate overall assessment.

***In-State Share of Investment.*** Many of the investments in structures and equipment are made within the state and will have a meaningful and immediate one-time impact on the state economy. We assume that all construction, whether a new building or expansion of an existing structure, is performed by firms located within the state and has full economic impact on the state economy.

The purchase of existing vacant property will generally have much less economic impact. The cost to purchase the property is considered a conversion of one asset (cash) to another and does not produce any net economic impact. The purchase is largely a financial transaction and exerts impact only to the degree that expenses such as commissions, fees, financing costs, etc... are incurred within the state. Hence, although the cost of the exemption for purchased vacant property is determined by the full value of the property, any resulting economic impact is generally only a fraction of this amount. Our estimates suggest that approximately 15% of the value of the property is a reasonable share, and that most of this spending takes place within the financial services and professional and business services sectors.<sup>27</sup>

Firms receiving the exemption also make qualifying purchases of equipment for use in manufacturing. A share of this equipment is sourced within the state while some is imported. Only purchases originating within the state will produce any direct economic impact. We assume that only 40% of the purchases are from state-based suppliers and are spread across the durable goods manufacturing sectors using the current state mix of durable goods production.<sup>28</sup>

Under these assumptions, upfront investments made within the state by 2009 recipients include \$203.7 million in construction expenditures; \$3.4 million in net expenditures related to the purchase of existing vacant buildings; and \$90.53 million in equipment purchases. **In total, \$297.6 million, or 65.8%, of the \$452.7 million invested by firms is assumed to represent net expenditures within the state.** More detailed reporting by the Tax Commission describing the aggregate amount of investment made by type would allow for a more precise estimate of the in-state shares.

***Declining Exemptions over Time.*** Firms must reapply and be certified to receive the exemption in years 2 through 5. Over the full five years, the 2009 cohort received ad valorem exemptions totaling \$18.4 million - \$5.1 million for 2009; \$4.0 million for 2010; \$3.6 million for 2011; \$3.2 million for 2012; and \$2.5 million for 2013. The value of the annual exemptions realized through year 5 will typically decline each year as firms leave the program and the value of the assets underlying the exemption depreciate. For the 2009 cohort, only 55 of the original 97 exemptions (56.7%) were still in place through year 5 (2013). The annual value of the exemptions declined by more than 50% by year 5, falling to \$2.5 million. The total value of the assets covered under the exemption similarly declined by more than 50%, to an estimated \$220.1 million in year 5. These declines reflect both the toll the recent national recession took on state manufacturers and the resulting surge in denial rates for exemption applications. Again, our estimates suggest that, across a large sample of applicants across time, about 5% of the value of exemptions will be lost each year from both firms leaving the program and depreciation of asset values. This suggests an

estimated 81.5% percent of the value of exemptions will likely remain in place after five years across a larger sample of recipient groups.

***State Reimbursement to Counties.*** The state of Oklahoma subsequently reimbursed the 30 participating counties a total of \$18.4 million for 2009 exemptions that were active during the five years. In forming economic impact estimates, a framework must be chosen for allocating this cost. We assume that the reimbursement process does not produce any net reduction in total state and local government spending. Under this assumption, the 'cost' of the exemption is merely a budget shift from state to local government. For the 2009 group, the exemption redirects \$18.4 million of the existing state budget to local government spending. Any economic impact from reduced spending at the state level would be directly offset by added spending at the local level.<sup>29</sup> While this may effectively remove control of this portion of the state budget from the legislative process, overall government spending within the state remains unchanged. We further assume there is no additional tax revenue raised to pay the cost of the exemption, with the funds instead shifted away from other forms of state spending and redirected to local government. This is believed to be the most reasonable assumption in the current state budget environment, as well as the budget climate in place since 2009.

It would be reasonable to examine the alternative case of raising additional taxes in order to keep the existing budget in place. In this case, the increased taxation would likely lower the net economic contribution, and raise the effective cost, of the exemption. Nonetheless, evaluating the case of new taxes would require highly detailed assumptions about the method for raising taxes and extensive modeling of both the tax and spending sides of the state budget.

Had the reimbursement instead gone directly to the firms, we would assume a decline in total state and local government spending - private spending would be higher, local government spending would remain unchanged, and state government spending on goods and services would decline by \$18.4 million.

***Added County Revenue and Spending.*** After receiving the reimbursements, counties distributed the added revenue to the taxing entities within each county for five years, generally with a one year lag.<sup>30</sup> For the 2009 cohort, counties received a total of \$18.4 million in reimbursements in the five year period - \$5.1 million for the 2009 tax year; \$4.0 million for the 2010 tax year; \$3.6 million for the 2011 tax year; \$3.2 million for the 2012 tax year; and \$2.5 million for the 2013 tax year. **Of the total, common education received \$12.1 million (65.9%), the counties themselves retained \$2.9 million (15.8%), CareerTech received \$2.3 million (12.8%), junior colleges received \$252,740 (1.4%), and all others received \$768,790 (4.2%).** These funds were subsequently spent primarily in the local economy and generated added local economic activity. We assume all funds are spent in full in the year received. Based on the makeup of recipients of the funding, the exemption has produced slightly higher overall spending on education at the local level relative to other foregone uses at the state level.

***Increased Manufacturing Output.*** Manufacturers who received the exemption are expected to expand their production of goods within the state using the \$452.7 million in newly acquired structures and equipment. The full value of the investment, not just the share of the assets purchased within the state, is used to estimate the added output. These output gains are realized beginning in year 1 of the exemption and can continue well beyond the life of the exemption.



The added output is expected to equal a fairly constant multiple of the investment made. Across a range of manufacturing sectors at the national level, factories consistently produce \$2.60 in output for every net dollar invested in equipment and structures.<sup>31</sup> Hence, the full \$452.7 million in added investment is expected to increase total output at these firms by approximately \$1.18 billion in year 1. The added output represents 1.6% of the approximately \$75 billion in average annual output in the Oklahoma manufacturing sector during this five year period.<sup>32</sup>

The amount of added output will decline each year as the assets depreciate – both functionally and economically.<sup>33</sup> After accounting for depreciation, the value of the assets is expected to decline by 26.5% by year 5, from \$452.7 in year 1 to \$337.2 million in year 5.<sup>34</sup> This equates to added output of \$1.18 billion in 2009, \$1.09 billion in 2010, \$1.0 billion in 2011, \$939.6 million in 2012, and \$876.7 million in 2013. **In total, an estimated \$5.1 billion in added direct output is expected over the five-year life of the exemption for the 2009 group of manufacturers.** For generating a conservative estimate of the output gains, we further assume that the value of the added output ends after year 5 of the exemption, even though it is likely that the productive life of many of these assets will last well beyond the five-year life of the exemption.<sup>35</sup>

***Avoided Costs for Firms.*** The exemption is valued by qualifying firms because they avoid ad valorem costs equal to the value of the exemption. While not a direct cash flow to the firm, the taxes avoided effectively lower the realized cost of the related capital investments. The higher the local tax rate the greater the potential value of the exemption to the firm. At current average property tax rates in Oklahoma, the annual costs avoided equal approximately 1% of the initial value of the qualifying property (within a range of 0.73% to 1.46% across counties). **Firms receiving the exemption for the full five years receive an average reduction equal to approximately 5% of the initial value of the qualifying investment** (within a range of 3.65% to 7.3% across counties). The value of the exemption is recalculated each year after deducting any allowed depreciation from the value of the asset. Once the exemption is terminated or expires, the firm must begin paying ad valorem taxes to the county based on the depreciated value of the assets.

Manufacturers receiving the exemption in 2009 avoided first year costs of \$5.1 million, the amount of the year 1 tax exemption received. The cost reductions in years 2 through 5 are equal to the value of the exemptions paid to the counties - \$4.0 million for 2010; \$3.6 million for 2011; \$3.2 million for 2012; and \$2.5 million for 2013.

***Property Taxes Shift to Firms.*** The exemption benefit begins to unwind slowly beginning in year 2 as firms drop out of the program and pay ad valorem tax directly to the county. This added tax revenue is received by the counties in addition to the ongoing reimbursements from the state for exemptions that remain active. Based on Tax Commission data for exemptions that did not renew each year and estimates of depreciated values for the assets, we estimate that firms in the 2009 cohort paid ad valorem taxes totaling \$844,360 for 2010, \$914,730 for 2011, \$953,260 for 2012, and \$1.34 million for 2013 for assets that were no longer covered by the program. **This represents an additional \$4.1 million in added ad valorem tax revenue accruing to the counties during the five-year life of the exemption.** This funding is spent locally, primarily for education.

Once the exemption expires after year 5, firms begin to pay substantially more ad valorem taxes on the structures and equipment that leave the program.<sup>36</sup> Most assets used in production have long, productive lives and will only slowly drop off the tax rolls. While we do not know the exact time path, we assume a five-year period after the program ends for tax payments to be made on the depreciated value of the assets still in the program at the end of year 5. The value of equipment is expected to fall substantially over time through depreciation while structures should retain much of their value. These assets are then assumed to be removed from service and provide no additional ad valorem tax revenue after year 10. Our estimates suggest that the assets purchased by the 2009 cohort remaining in the program will have an average value of \$280.2 million after depreciation in the five years following the expiration of the exemption. **Firms would be expected to pay a total of \$16.1 million to the counties in ad valorem taxes in years 6-10, or an average of \$3.2 million annually.**

These direct impacts are expected to generate significant spillover impacts both locally and statewide and are estimated in the next section of the report.

### ***Summary of Direct Economic Impacts for the 2009 Cohort***

- For the 2009 tax year, a group of 82 manufacturing firms received ad valorem exemptions totaling \$18.4 million over a five year period.
- In return, these firms made \$453 million in upfront investments in structures and equipment; of this total, an estimated \$298 million was spent within the state.
- Firms with active exemptions also produced an average of \$1 billion in estimated new output in each of the five years of the exemption using the newly acquired equipment and structures.
- The state shifted a total of \$18.4 million in income tax revenue over five years to reimburse counties for the cost of the exemptions.
- County taxing entities received this added funding and spent it primarily on local education.
- Firms leaving the exemption program during the five-year life of the exemption paid an estimated \$4.1 million in added ad valorem taxes to the counties as assets left the program.
- Firms are also expected to pay an additional \$16.1 million in ad valorem taxes on the depreciated value of the assets to counties in the five years following the exemption's life.

## VII. Impact of the Exemption on the State Economy

In this section we provide model-based estimates of potential statewide spillover effects from the group of manufacturers receiving first-year exemptions in 2009. We use two types of models of the Oklahoma economy – input-output and computable general equilibrium (CGE) – to form the estimates. Both models are commonly used to estimate spillover economic outcomes given a change in economic conditions in a regional economy. Both modeling methods suggest large net positive spillover benefits are realized from the exemption.

### Estimated Spillover Impacts: 2009 Exemption Cohort

The intent of this section is to provide estimates of the economic impact at the statewide level. For this reason, we do not provide detailed analysis from the perspective of either the firms receiving the exemption or the counties granting the exemption. This is in large part because we believe the benefits from the exemption program are uniformly positive for both firms and counties.

Firms receiving the exemption avoid costs equal to the amount of the exemption, typically around 5% of the value of the capital investment, and face essentially no cost beyond those of the application process. Firms have continued to apply for the exemption in large numbers over the years, with many using the exemption repeatedly. We believe this adequately establishes its net positive value to recipients.

For the counties, the increase in ad valorem tax revenue is received immediately under the reimbursement mechanism rather than deferred for five years. The revenue to the county comes primarily from the state through reimbursements, but part comes through payments from firms as assets leave the exemption program. These funds are then spent largely in the local economy, which generates positive local impacts, with the majority going for the provision of education. The only costs to the county are any incremental expenses incurred in providing local public services to support the new capital investment. Given the limited expectations for new employment and added population associated with the exemption, we believe the added revenue to the counties will more than cover the added public costs in nearly all cases. Possible exceptions would include very large projects requiring extensive infrastructure spending. Counties also continue to participate in large numbers, which we believe establishes the positive value of the exemption at the local level.

***Statewide Direct Benefits.*** Our effort focuses on estimating the net value of the exemption to the state economy. Under the assumption that the reimbursements are paid for by shifting spending at the state level, the following statewide direct costs and benefits described earlier are tied to the 2009 cohort of manufacturers receiving exemptions:

#### Direct benefits:

1. \$297.6 million in upfront investment purchases made within the state (assumed in 2009) - construction expenditures (\$203.7 million); expenditures in acquiring existing buildings costs (\$3.4 million); and equipment purchases (\$90.5 million).
2. \$1.02 billion in new statewide output on average in each year of the exemption - \$1.18 billion in 2009, \$1.09 billion in 2010, \$1.0 billion in 2011, \$939.6 million in 2012, and \$876.7 million in 2013.

3. \$18.4 million in local government spending from reimbursements to counties by the state - \$5.1 million for 2009; \$4.0 million for 2010; \$3.6 million for 2011; \$3.2 million for 2012; and \$2.5 million for 2013.
4. \$4.1 million in local government spending from increased ad valorem taxes paid to counties by firms leaving the program early each year - \$844,360 for 2010, \$914,730 for 2011, \$953,260 for 2012, and \$1.34 million for 2013.
5. \$16.1 million in local government spending from increased ad valorem taxes paid to counties by firms in years 6-10 after the exemptions expire - \$3.6 million for 2014, \$3.4 million for 2015, \$3.2 million for 2016, \$3.0 million for 2017, and \$2.9 million for 2018.

**Direct costs:**

1. \$18.4 million in exemption reimbursements by the state to counties (see schedule of amounts and timing above)
2. local public service costs related to the new investments

To simplify the modeling process, we do not directly evaluate the benefit of the reimbursement to the county because it is exactly offset by the cost of the exemption to the state. Offsetting these two items also leaves the provision of added local public services as the only remaining direct cost.

***Input-Output Estimates.*** We initially evaluate the expected spillover effects using a traditional input-output modeling approach. A similar approach was used in the Dauffenbach and Warner report and can provide useful estimates of the spillover effects assuming a range of assumptions are met.<sup>37</sup> An IMPLAN input-output model of the Oklahoma economy is used to estimate the spillover wage, income, and tax effects traced to the direct effects detailed above.<sup>38</sup>

We examine three direct benefits - upfront investments, added annual output, and tax revenue paid by firms. In IMPLAN the upfront investments in construction are allocated to the New Construction of Nonresidential Manufacturing Facilities sector; equipment purchases are allocated to the Durable Goods Manufacturing sector (aggregated across all 2-digit sub-sectors); and expenses for the purchase of existing buildings are split equally between Financial Services and Professional and Business Services aggregated at the 2-digit NAICS level.<sup>39</sup>

***Upfront Investment.*** The results summarized in Figure 12 suggest that the \$297.6 million in upfront investments produces significant spillover impacts to the state economy.<sup>40</sup> These include a total of \$479.4 million in direct and spillover output; \$177.3 million in direct and spillover labor income; and 3,874 direct and spillover jobs. The implied total output gain is 1.61 times the increase in investment spending.

**Added state and local taxes resulting from the upfront investment totaled an estimated \$17.3 million.** This added revenue equals 3.6% of total added output and is roughly equal to the total five-year cost of the exemption.

<b>Figure 12. Input-Output Estimates of Upfront Investment Impacts</b>	
<b>Direct effects:</b>	
	\$203.7 million increase in construction investment
	\$90.5 million in durable goods investment
	\$3.4 million in professional and business services
<b>Total (indirect and induced) change in:</b>	
Output of goods and services	\$479.4 million
Labor Income	\$177.3 million
Employment	3,874 jobs
State and Local Taxes	\$17.3 million
Source: RegionTrack and IMPLAN Input-Output model	

**Added Annual Output.** The impact of increased annual production is modeled by assuming output increases within each NAICS manufacturing sector using proportions for the exemptions detailed in Figure 11. **The results in Figure 13 suggest that the roughly \$1.02 billion in new output each year supports annual impacts of \$1.57 billion in direct and spillover output; 5,737 direct and spillover jobs; and \$310.7 million in direct and spillover labor income in the five years of the exemption.** The annual gains decline steadily over the life of the exemption. The implied total output gain over the five years is 1.54 times the initial change in annual output.

<b>Figure 13. Input-Output Estimates of Increased Output Impacts</b>							
	Direct Effect			Total (indirect+induced) Effect			
Tax Year	Employment	Labor Income (millions)	Output (billions)	Employment	Labor Income (millions)	Output (billions)	State & Local Taxes (millions)
2009	2,517	\$166.5	\$1.18	7,287	\$369.4	\$1.82	\$38.2
2010	2,090	150.1	1.09	5,964	330.0	1.68	33.8
2011	1,921	138.0	1.00	5,481	303.3	1.54	31.1
2012	1,805	129.7	0.94	5,150	285.0	1.45	29.2
2013	1,684	121.0	0.88	4,805	265.9	1.35	27.2
Average	2,003	\$146.1	\$1.02	5,737	\$310.7	\$1.57	\$31.9
Source: RegionTrack and IMPLAN Input-Output model							

**State and local tax revenue increases by an average of \$31.9 million annually, or a total of \$159.5 million across the five years of the exemption.** The estimated added tax revenue equals 2.0% of the total output gain annually on average and substantially exceeds the cost of the exemption over its life.

**Added Tax Payments by Firms.** The final direct benefit is added local government spending from tax revenue paid directly by firms in years 1-5 of the exemption and years 6-10 after expiration. Discounted back to 2009 at 3% annually, these benefits total \$19.6 million in added spending by state and local government. The results assume all of the added revenue is spent in full using the existing state and local government spending shares in IMPLAN. We believe this closely resembles the actual mix of spending by the institutions receiving the ad valorem tax revenue.

The results in Figure 14 suggest that the roughly \$20 million increase in added state and local government spending has only a modest expected impact relative to the upfront investment and added annual output associated with the exemption. Total impacts in years 1-5 and years 6-10 of the exemption include \$32.2 million in direct and spillover output statewide; 184 direct and spillover jobs; and \$10.0 million in direct and spillover labor income. The implied total output gain is 1.64 times the initial change in state and local government spending.

<b>Figure 14. Input-Output Estimates of Increased State/Local Govt. Spending</b>	
<b>Direct effect: ( in 2009 dollars)</b>	
\$19.64 million increase in state and local govt. spending	
<b>Total (indirect and induced) change in:</b>	
Output of goods and services	\$32.2 million
Labor Income	\$10.0 million
Employment	184 jobs
State and Local Taxes	\$348,655

Source: RegionTrack and IMPLAN Input-Output model

Spillover tax revenue generated by added government spending is expected to total roughly \$350,000. The estimated tax gain is 3.5% of the projected increase in output over the period.

Overall, the input-output estimates suggest that the economic activity generated by the exemption produces a range of significant economic spillover effects, beginning upfront with the initial investment by firms and extending well beyond the five-year life of the exemption as additional taxes are paid. The predicted direct and spillover effects far outweigh any potential direct costs of the exemption.

**Overall, the input-output estimates suggest that the economic activity generated by the exemption produces a range of significant economic spillover effects, beginning upfront with the initial investment by firms and extending well beyond the five-year life of the exemption as additional taxes are paid. The predicted direct and spillover effects far outweigh any potential direct costs of the exemption.**

### CGE Model Estimates of Spillover Impacts

Input-output model results are often criticized for their inability to capture the full adjustment process when modeling incremental changes in regional economic activity. They effectively isolate the behavior in a given market while assuming that behaviors in other markets remain fixed. Hence they often fail to capture many of the critical interactions between markets. From a policy perspective, they

have received frequent criticism for potentially overstating the resulting economic impact of a policy action when there are meaningful constraints on resources in the local economy, primarily limited capital or labor.

A modeling framework that evaluates the detailed linkages between the various sectors of an economy is the class of computable general equilibrium (CGE) models. CGE models have long been a preferred tool for performing policy analysis at the international and national levels and are now being used extensively at the state level, including in Oklahoma.<sup>41</sup> CGE models attempt to provide a broad understanding of an economy by using a bottom-up approach to building a detailed model of a region that includes dynamic linkages between all markets and participants.

**In this section, we apply a CGE model of the state of Oklahoma to evaluate the two major impacts tied to the ad valorem exemption – upfront investments and added annual output.** A detailed description of the model's structure is contained in Appendix 2. The model is first fitted or 'calibrated' to known data for the state in order to estimate any unknown economic parameters in the model and to establish a baseline for the state economy given known data for the region. Simulation results are then formed by adjusting policy variables within the model and re-solving the model to find a new 'counterfactual' solution or equilibrium. The model is 'comparative static' in the sense that it evaluates the transition in the local economy from the initial baseline to a new equilibrium without specifying a time-path for the adjustment process.

**Upfront Investment.** First, we use the model to examine the upfront investment in structures and equipment by firms receiving the exemption in 2009. In the model we treat the investment by these firms as an external, or exogenous, increase in (or shock to) capital purchases - \$203.7 million in the construction sector and \$90.5 million in durable goods manufacturing. We ignore the relatively small amount of spending related to existing buildings. The model is then re-solved for a new equilibrium.

The CGE results shown in Figure 15 suggest substantial spillover effects from the upfront investment. **In fact, the predicted changes in output, income, and employment are roughly 10% larger than those predicted by the input-output model.** The predicted changes include a total increase of \$522.9 million in state output; \$191.7 million in labor income; and 4,092 new jobs (at the state average for earnings per worker). The implied multiplier for total output is 1.78 times the initial investment shock to construction and durable goods. These are generally considered one-time effects, largely occurring in year 1.

<b>Figure 15. CGE Estimates of Upfront Investment Impacts</b>	
<b>Model shocks:</b>	
\$203.7 million increase in capital investment in construction	
\$90.5 million increase in capital investment in durable goods	
<b>Total change in:</b>	
Output of goods and services	\$522.9 million
Labor Income	\$191.7 million
State and Local Taxes	\$35.3 million
Employment (at state avg. earnings per worker)	4,092 jobs
Source: RegionTrack	



The predicted tax effect roughly doubles, rising from an estimated \$17.3 million with the input-output model to \$35.3 million in the CGE analysis. The higher tax revenue in the CGE estimates reflects greater dynamic growth in output and labor income, added property tax revenue not captured by the input-output model, and a high average tax rate applied on imported goods. The overall tax increase equals 6.8% of the predicted total change in output. Across the full state economy in the calibrated baseline analysis, state and local taxes equal 14.1% of total state output.

**Added Annual Output (Exports).** Similar results are found for the added annual output produced by the 2009 recipients. We model the output increase in the CGE as a \$750 million increase in exports of durable and nondurable manufactured goods. This is the approximate export share for the \$1.02 billion in added output expected on average over the five years of the exemption for the 2009 cohort. Approximately 74% of all durable and nondurable goods produced in the state are exported outside the state.

The export simulation with the CGE model (see Figure 16) suggests an annual average increase of \$1.46 billion in total output; \$374.3 million in labor income; and 7,992 jobs (at the state average for earnings per worker) in the five years of the exemption. The implied multiplier for output is 1.95 times the initial shock to exports.

<b>Figure 16. CGE Estimates of Increased Output (Exports) Impacts</b>	
<b>Model Shock:</b>	
\$750 million increase in exports of durable and nondurable goods	
<b>Total change in:</b>	
Output of goods and services	\$1,461.9 million
Labor Income	\$374.3 million
State and Local Taxes	\$67.9 million
Employment (at state avg. earnings per worker)	7,992 jobs
Source: RegionTrack	

The added exports generate estimated new state and local tax revenue of \$67.9 million annually on average, more than double the average revenue predicted by the input-output analysis. Again, the added revenue is due to a much higher implied output multiplier, greater property tax revenue, and increased taxes on imported inputs to production. The predicted revenue gain is 4.6% of the total output change, more than double the 2.0% gain predicted by the input-output model.

## Discussion of Spillover Estimates

The large estimated benefits in the prior sections overwhelmingly suggest that the exemption will more than pay for itself if the full benefits can be directly attributed to the exemption. While the largest benefits remain the upfront investment and added output, these remain the most difficult benefits to attribute fully to the exemption. **It remains unknown what exact share of activity would have taken place without the exemption.** Even if the exemption was known to have played a major role in all of the transactions, there is simply no reliable way to determine the exact share. Many of these transactions were also accompanied by other state and local incentives, making it difficult to apportion a relative share

of the outcome to the exemption. The strongest statement we can make is that these are the estimated direct costs and benefits and spillover effects *associated* with the exemption.

***Cost Recovery.*** If the benefits are in fact fully attributable to the exemption, these impacts produce significant added economic activity statewide along with more than sufficient new tax revenue at the state and local level to cover the upfront cost of the exemption. **Using the lower tax estimates from the input-output analysis, the \$18.6 million cost of the 2009 exemptions was fully recovered nearly tenfold by the estimated \$177.2 million in total state and local tax revenue generated. If only 10.5% of the new direct activity can be traced directly to the exemption, the cost of the program is likely fully covered by the added revenue.** This is slightly lower than the 15% share reported in Dauffenbach and Warner needed by the Quality Jobs Act to cover its costs.

The higher CGE tax estimates suggest that an even lower share of the exemption activity may be needed. **These estimates predict that added state and local tax revenue could total as much as \$374.8 million over the five years of the exemption. This suggests that only 5% of the new direct activity would need to be traced directly to the exemption to fully recover the cost.**

***Modeling Caveats.*** A few notes about applying the model-based estimates are warranted.

1. The results are designed to measure the outcomes for *manufacturers*, not other firm types. Significant adjustments to the modeling framework would be needed to evaluate the expected impact of wind farms, distribution centers, and data centers. These firms impact the economy through much different economic channels and cannot be treated as equivalent for modeling purposes. The exemptions for these firms are issued with different upfront and ongoing eligibility requirements and should be evaluated using a different set of expectations consistent with the economic channels through which they affect state economic activity.
2. It is likely that the model-based estimates of employment gains in the prior section will be overstated. Large gains in output per worker are highly likely when new investments are made in the manufacturing sector. Manufacturers typically make major capital investments in order to reduce their relative usage of labor. As a result, many of these capital investments may actually put downward pressure on employment at many manufacturing firms.
3. The results should be adjusted downward, where possible, to reflect recipient firms going out of business or relocating, or the failure of a new product line. We adjust for these possibilities by dropping firms from the economic impact estimates as they leave the program.
4. The results do not account for any cannibalization or replacement of existing product lines at the recipient firms or competing firms, or the shifting of other activity by these firms within or outside the state.
5. The results represent an average expected outcome across the cohort of 2009 firms receiving the exemption and may not reflect the actual outcome for any individual firm.
6. The estimates provide expected economic impacts generated specifically by the new activity associated with the exemptions only at the facilities tied to the exemption. This is a gross effect for the specific facilities, or location, where the investment took place and does not reflect the activity at these firms statewide.

***Other Cohort Groups.*** Any other cohort year of manufacturers receiving the exemption can be easily evaluated using the same framework. **In general, the expected net economic impact from the exemption will be greater:**

1. the greater the initial investment and exemption value;
2. the longer the time frame firms stay qualified for the program on average;
3. the higher the share of in-state investments made; and
4. the higher the share of added economic activity that is directly traced to the exemptions.

***Forming Better Estimates.*** Better estimates of the economic impact can almost certainly be formed with increased access to data on the group of firms receiving the exemption. Items needed include the following:

1. A count of the firms receiving the exemption that are operating in the state during each year of the exemption (and subsequent years) by major category;
2. A breakdown of the value of exemptions by NAICS category;
3. Total exemption amounts for the major categories of assets approved within the program (real vs. personal property; for real property – a breakdown of new construction vs. improvements vs. purchase of existing vacant property);
4. Total baseline payroll used in the first-year approval of the exemptions;
5. Total annual payroll gains used each year in reapproving the exemptions at the *facility* and *firm* levels;
6. Property tax payments made by firms on assets initially covered by the exemption over the five-years of the exemption;

These data items would allow for more comprehensive and accurate modeling of the expected benefits, as well as provide a more reliable test of the actual employment and payroll behavior at firms receiving the exemption. Many of these items are already collected as part of the process used to administer the exemption. These items could easily be reported in aggregate form by the Tax Commission for the various categories of firms, and none would need to be released at the firm level.

<b>VIII. Appendix 1 – Exemption Recipients</b>			
<b>Manufacturing and R&amp;D Firms</b>		<b>Tax Years 2009-2013</b>	
<b>Recipient (Unique Firms)</b>	<b>#</b>	<b>Value of Exemptions</b>	<b>Value of Assets</b>
1 A G EQUIPMENT	19	\$865,253	\$12,993,056
2 AAON INC	19	1,744,657	26,198,610
3 AAR SERVICES	3	21,811	767,899
4 ADVANCE PIERRE FOODS	38	3,750,010	70,471,926
5 AERO COMPONENTS CO	1	71,682	5,047,413
6 AERT INC	5	473,064	13,449,276
7 AFFINA PRODUCTS CORP	4	97,940	1,724,086
8 AGC MANUFACTURING SERVICES INC	1	5,106	440,022
9 AIR X CHANGERS	6	25,425	1,236,416
10 ALL STATE TANK MFG LLC	2	4,633	477,880
11 ALLIANCE STEEL INC	4	70,923	1,664,656
12 ALLTRA CORPORATION	10	152,907	2,096,887
13 AMERICAN CASTINGS,LLC	7	68,002	1,832,628
14 AMERICAN PREPARED FOODS INC	3	549,695	19,353,098
15 AMERICAN TRANS OF OKLA LLC	3	101,158	7,595,186
16 AMERISTAR FENCE PRODUCTS	13	743,376	11,162,892
17 AMERON INTERNATIONAL CORP	2	319,566	23,993,785
18 ANCHOR STONE COMPANY	15	187,585	3,648,899
19 APL ARKOMA MIDSTREAM FKA CARD. ARK STREAM	2	557,092	29,350,895
20 APPLIED INDUSTRIAL MACHINING INC	3	72,236	2,543,211
21 ARKANSAS BOX LLC	1	2,755	294,667
22 ARROW ENGINE COMPANY	6	53,312	800,559
23 ARYSTA LIFE SCIENCE TECH	3	51,614	1,901,666
24 ATC DRIVETRAIN FKA AUTOCRAFT	15	402,004	6,468,611
25 ATLAS PIPELINE MID-CONTINENT WEST	1	626,806	69,282,097
26 AUTO TURN MANUFACTURING	1	4,981	429,250
27 AXH AIR COOLERS LLC	29	363,553	7,071,824
28 BAKER OIL TOOLS INC	4	158,406	5,946,752
29 BAKER PETROLITE	35	1,117,253	18,230,652
30 BALON CORP	31	1,828,936	25,756,521
31 BAMA	9	265,268	3,983,392
32 BAR S FOODS	63	1,656,952	37,698,995
33 BEARWOOD CONCEPTS INC	4	23,176	435,027
34 BIOMANUFACTURING HOLDINGS	1	14,282	1,005,652
35 BIZJET INTERNATIONAL	8	147,303	2,211,973
36 BLITZ USA INC	6	181,466	6,038,783
37 BLUE BELL CREAMERIES	2	38,878	1,675,204
38 BORAL BRICKS	3	980,879	26,305,395
39 BRENNER INC	1	3,486	372,852
40 C P KELCO	8	213,884	4,047,720
41 CAMERON INTERNATIONAL CORP	15	541,502	19,229,350
42 CARBONYX INC	10	30,895	580,884
43 CARDINAL GLASS	3	1,015,034	50,584,117
44 CARLISLE FOOD SERVICE PRODUCTS	2	42,611	3,000,409
45 CASECO MANUFACTURING	6	44,082	2,143,705
46 CENTEK INC	1	68,790	4,843,776
47 CENTRAL MORTAR AND GROUT	5	284,947	5,463,780
48 CENTRAL PLASTICS	3	31,909	1,284,844
49 CENTRILIFT	35	561,128	10,835,152
50 CERADYNE BORON PRODUCTS	6	105,475	3,509,972
51 CHAMPAGNE METALS	2	130,459	4,897,588
52 CHARLES MACHINE WORKS	21	361,843	8,112,050
53 CHART COOLER SERVICE	3	20,427	511,236
54 CIRCOR ENERGY PRODUCTS	4	16,300	587,742
55 COOPER CAMERON	4	121,855	2,860,097
56 COVINGTON AIRCRAFT ENGINES	2	53,844	2,547,472
57 CYTOVANCE BIOLOGICS	8	85,913	1,209,895
58 D & L MANUFACTURING	13	260,015	3,904,511
59 DAL ITALIA INC	22	1,740,714	33,377,710
60 DEVON GAS SERVICES	12	5,984,684	116,248,504
61 DISCOVERY PLASTICS LLC	6	70,736	2,278,857
62 DORADA FOODS LLC	3	544,878	22,721,621
63 DURANT METAL SHREDDING	13	168,301	3,354,905
64 EAGLE REDI MIX CONCRETE LLC	6	114,795	2,873,028
65 EAST JORDAN IRON WORKS	17	202,911	3,815,110
66 ENOGEX PRODUCTS	4	1,435,772	38,929,152
67 ENVIRO SYSTEMS INC	13	173,477	4,278,079
68 EQUIPMENT TECHNOLOGY	4	102,256	1,800,062
69 FACET USA	3	99,370	3,766,804
70 FLANDERS CORP	7	81,409	3,826,608
71 FLEX-N-GATE	4	155,015	15,856,435
72 FLIGHT SAFETY INTERNATIONAL INC	3	1,093,713	41,059,303
73 FRANKLIN ELECTRIC CO INC	11	105,077	2,338,435
74 FRONTIER ELECTRONIC SYSTEM	5	19,492	633,614
75 GE OIL & GAS ESP FKA WOOD GROUP	6	80,663	1,135,960
76 GEA RAINEY CORPORATION	11	149,780	4,855,862
77 GEORG FISCHER CENTRAL PLASTICS	2	38,491	3,099,747
78 GEORGIA PACIFIC	22	4,127,902	79,151,381
79 GLOBE LIFELINE EMS LLC	3	9,043	462,503
80 GOODYEAR TIRE & RUBBER CO	6	3,773,637	123,223,369
81 GREAT PLAINS COCA COLA BOTTLING	3	15,263	722,124
82 GUNNEBO/JOHNSON CORP	5	25,282	949,117
83 HALLIBURTON ENERGY SERVICES	3	132,680	4,877,402
84 HARRISON GYPSUM CO	9	115,324	2,394,040

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85	HEATER FABRICATORS	1	2,821	211,807	130	NORDAM GROUP	47	664,941	12,481,343
86	HEATER SPECIALISTS LLC	7	250,684	3,764,392	131	NORRIS SUCKER RODS	1	8,139	611,096
87	HEM INC	3	8,885	478,895	132	NWM, INC	2	7,964	727,148
88	HITACHI COMPUTER PRODUCTS	3	601,520	21,689,498	133	OAI ELECTRONICS	3	23,291	582,915
89	HOLLY REFINING	18	7,191,622	134,991,076	134	OK FOODS INC	3	41,656	1,506,429
90	HOPKINS MFG CORP FKA F3 BRANDS	2	30,608	1,527,849	135	OKLAHOMA PROCURE MGMT	4	4,544,573	80,000,333
91	HUBER ENGINEERED WOODS	2	32,173	3,485,270	136	OKLAHOMA PUBLISHING COMPANY	5	105,054	7,397,267
92	HUGHES ANDERSON	4	41,413	1,554,694	137	OKLAHOMA STEEL & WIRE	2	11,102	657,359
93	HUGHES CHRISTENSEN	2	57,618	2,726,028	138	ONLINE PACKAGING	2	31,634	1,486,947
94	HYPRO INC	1	36,341	3,677,732	139	ORCHIDS PAPER PRODUCTS	13	1,268,049	27,338,746
95	IMATION ENTERPRISE	2	410,128	44,480,419	140	PARAGON INDUSTRIES INC	11	452,753	7,575,775
96	INDUSTRIAL COMPOUNDING	1	14,001	1,316,579	141	PARFAB INDUSTRIES	7	262,565	5,107,408
97	INS SPECIALTIES LLC	1	2,976	289,445	142	PECHINEY PLASTIC PACKAGING	1	13,800	1,342,186
98	INTEGRATED SERVICE CO LLC	7	112,602	2,818,143	143	PELCO STRUCTURAL LLC	11	90,351	2,196,882
99	INTERNATIONAL PAPER	5	983,517	35,514,482	144	PHILLIPS 66 FKA CONOCO PHILLIPS	8	9,864,042	164,533,729
100	JENSEN INTERNATIONAL INC	1	5,013	457,709	145	PLIANT LLC	6	332,251	8,919,428
101	JOHNSON CONTROLS DBA YORK INTL	4	73,256	2,641,451	146	PRECISE MACHINING & MFG CO	2	12,097	454,136
102	KEMPER VALVE & FITTINGS CORP	3	38,487	1,899,178	147	PRECISION MACHINE & MFG CO	22	576,388	11,890,543
103	KIMBERLY CLARK CORPORATION	25	3,935,479	59,097,049	148	PREMIER AEROSPACE SERVICES	1	2,524	278,983
104	KIMRAY INC	8	154,571	2,720,989	149	PRIDE PLATING INC	5	18,841	647,798
105	LATTIMORE MATERIALS	4	34,557	3,326,510	150	PROLER SOUTHWEST CORPORATION	1	11,186	963,981
106	LINDE PROCESS PLANTS INC	1	2,401	233,521	151	PROLER SW CORP FKA ADV METAL	10	294,305	4,496,427
107	LONE STAR INDUSTRIES, INC	1	32,468	3,500,000	152	PRYOR CHEMICAL CO	10	384,363	10,358,435
108	LOPEZ FOODS	10	472,813	7,607,992	153	QUAD GRAPHICS INC	18	6,016,952	84,735,471
109	LSB IND INC DBA CLIMATEMASTER	5	42,844	603,363	154	QUARTER TURN RESOURCES	8	32,620	680,133
110	LUCAS HOLDINGS LLC	2	18,931	666,503	155	RAE CORPORATION	7	34,785	937,442
111	LUFTHANSA TECHNIK COMPONENT SERVICE	1	13,737	1,031,407	156	RDS MANUFACTURING INC	10	188,348	2,828,324
112	MAHLE INDUSTRIAL FILTRATION USA	8	59,765	1,364,202	157	REPUBLIC PAPERBOARD LLC	11	369,830	7,245,800
113	MALARKEY ROOFING PRODUCTS	6	816,933	19,174,493	158	RICHARD'S MANUFACTURING CO	4	27,665	1,016,983
114	MALONE'S CNC MACHINING	10	24,186	498,943	159	RIGHTWAY MFG SOLUTIONS LLC	3	24,109	1,329,393
115	MARKWEST OKLAHOMA GAS CO LLC	3	282,995	15,346,107	160	ROLLED ALLOYS LP	5	72,713	1,216,684
116	MATRIX SERVICES INC	8	101,902	3,303,659	161	RUHRPUMPEN INC	5	14,279	214,420
117	MCKISSICK PRODUCTS CO	12	200,233	3,006,795	162	SCHWANS GLOBAL SUPPLY CHAIN	7	339,554	9,653,568
118	M-D BUILDING PRODUCTS INC	2	141,019	4,964,852	163	SCISSORTAIL ENERGY LLC	10	984,186	23,985,745
119	MERTZ MANUFACTURING LLC	1	111,594	9,307,025	164	SEABOARD FARMS	69	1,240,594	30,929,123
120	METALS USA PLATES & SHAPES	5	82,944	2,075,878	165	SEMMATERIALS LP	2	34,192	2,567,218
121	METCRAFT INC	3	36,232	1,952,877	166	SHEFFIELD STEEL	2	29,660	2,226,944
122	MID AMERICAN STEEL & WIRE	11	639,290	15,141,155	167	SIGMA PROCESSED MEATS INC	17	2,689,660	53,063,297
123	MID-CONTINENT PACKAGING	4	18,526	464,199	168	SIMMONS FOODS	1	74,608	7,448,362
124	MOUNTAIN COUNTRY PET CARE	12	83,760	2,336,582	169	SIMONTON BLDG PRODUCTS	1	39,097	4,198,306
125	NATIONAL OILWELL VARCO	4	126,500	5,291,713	170	SINCLAIR REFINING	2	1,846,396	138,631,860
126	NATIONAL STEAK PROCESSORS	6	39,320	738,060	171	SMITH TOOL	7	215,590	5,993,457
127	NAVISTAR FKA INTL TRUCK & ENGINE	10	260,359	4,887,095	172	SOLO CUP CORPORATION	18	409,349	10,468,045
128	NESTLE PURINA	25	3,327,830	46,865,131	173	SOUTHWEST ELECTRIC	4	66,932	1,178,237
129	NOMACO INC	4	114,040	4,587,519	174	SOUTHWEST NANOTECHNOLOGIES	3	101,023	2,428,446

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175 SOUTHWEST SILICON	1	19,739	1,855,653
176 SOUTHWEST UNITED	10	134,142	2,487,596
177 SPIRIT AEROSYSTEMS	35	3,331,122	50,722,908
178 SPX HEAT TRANSFER FKA YUBA	9	108,654	3,522,558
179 SSI TECHNOLOGIES	1	33,191	2,337,109
180 STEEL & PIPE SUPPLY CO	5	392,645	7,637,721
181 STILLWATER DESIGNS & AUDIO INC	5	230,288	4,491,494
182 STRINGTOWN MATERIALS	5	87,524	9,511,230
183 SVC MANUFACTURING INC	5	636,757	22,880,475
184 SYSCO FOOD SERVICES	1	994	71,683
185 TAYLOR RIG LLC	2	23,812	1,157,976
186 TD WILLIAMSON INC	14	132,353	2,214,622
187 TERRA INTERNATIONAL	7	4,973,632	126,521,878
188 TEXOMA MFG LLC	1	27,438	2,734,740
189 THE TILE SHOP OF OKLAHOMA	1	24,153	2,407,325
190 TITAN DURANT DBA EAGLE SUSPENSION	22	433,129	8,633,976
191 TRACKER MARINE LLC	7	47,268	1,572,973
192 TRINITY STRUCTURAL TOWER	2	31,792	2,387,020
193 TRINITY TANK CAR INC	4	180,464	6,353,591
194 TRINITY TANKCAR FKA DMI IND INC	10	1,147,497	27,901,356
195 TRISTAR GLASS INC	3	107,566	3,046,242
196 TULSA WINCH INC	6	141,404	3,538,984
197 TYSON FOODS INC	4	362,448	19,631,821
198 UMCO-PIEDMONT INC	1	15,058	1,130,591
199 UMICORE AUTOCAT USA	2	116,057	5,643,845
200 UMICORE OPTICAL MATERIALS USA	5	606,413	20,180,068
201 UNITED STATES GYPSUM CO	3	38,953	4,346,557
202 UPCO INC	5	24,407	791,274
203 VALERO REFINING CO	16	6,716,370	126,280,452
204 VALLEY TIMBERS	5	553,346	18,078,894
205 VALMONT INDUSTRIES	12	108,248	1,848,193
206 VAUGHAN FOODS INC	5	43,794	1,056,381
207 VELMA GAS PROCESSING COMPANY LLC	1	288,111	31,773,434
208 VENTURA REFINERY	4	562,016	30,476,714
209 VICTORY ENERGY	9	162,709	6,943,339
210 WALDENS MACHINING INC	13	606,134	9,102,000
211 WALVOIL FLUID POWER CORPORATION	1	3,765	282,685
212 WEBCO INDUSTRIES INC	26	1,278,489	20,484,859
213 WELLMAN PRODUCTS LLC	11	356,910	6,942,605
214 WHIRLPOOL CORPORATION	10	603,353	9,060,239

215 WHITLOCK PACKAGING CORP	7	151,540	3,632,172
216 WILCO MACHINE & FAB INC	12	73,442	1,619,865
217 WILLBROS DOWNSTREAM LLC	1	18,222	1,368,152
218 WOLVERINE TUBE INC	3	55,047	1,477,677
219 WYNNEWOOD REFINING	24	6,292,584	142,678,180
220 XTREME POWER GROVE LLC	3	12,795	659,883
221 ZEECO INC	17	216,292	4,659,874
Manufacturers and R&D	1,742	\$128,809,981	\$2,282,420,264

<i>Non-Manufacturers</i>		2009-2013 Tax Years		
		Value of	Value of	
Recipient (Unique Firms)		#	Exemptions	Assets
1	ASSOCIATED WHOLESALE GROCERS	5	\$2,430,872	\$34,233,460
2	BEST BUY STORES, LP	3	447,432	42,062,837
3	BLUE CANYON WIND	15	9,472,962	190,465,528
4	CANADIAN HILLS WIND LLC	9	4,226,540	340,044,407
5	CHISHOLM VIEW WIND	4	4,149,881	345,560,103
6	CPV KEENAN II RENEWABLE ENERGY	6	7,772,275	263,620,316
7	DEMPSEY RIDGE WIND PROJECT	8	4,356,370	258,751,994
8	DOLLAR GENERAL	20	872,231	16,399,592
9	DOLLAR TREE DISTRIBUTION INC	6	26,260	505,566
10	DOT FOODS INC	1	81,514	7,663,086
11	DURANT DC LLC	25	730,863	14,568,993
12	EDS INFORMATION SERVICES	6	1,047,551	39,326,326
13	FAMILY DOLLAR SERVICES INC	14	152,518	3,363,996
14	FPL ENERGY	2	1,567,061	168,243,409
15	GOOGLE INC	3	5,962,407	321,369,147
16	GROCERY SUPPLY ACQ CORP	4	429,839	15,133,331
17	HP ENTERPRISE SERVICES	15	3,015,029	56,593,910
18	KODE NOVUS	2	1,849,939	230,603,206
19	MISSION WIND	13	5,856,283	128,627,763
20	NEXT ERA ENERGY	51	18,812,597	492,666,994
21	RED HILLS WIND PROJECT LLC	15	10,265,094	241,184,936
22	ROCKY RIDGE WIND PROJECT LLC	3	2,534,858	260,376,133
23	TALOGA WIND LLC	4	3,223,644	221,146,854
Total Non-Manufacturers		234	\$89,284,020	\$1,848,132,444

## **IX. Appendix 2 – Oklahoma CGE Model Structure**

General equilibrium models attempt to provide a broad understanding of an economy by using a bottom-up approach to building a detailed model of a region that includes all relevant markets and agents (participants). They differ from their more widely used counterpart, partial equilibrium models, by addressing the interrelationships between the various markets in the model. Partial equilibrium models examine the behavior of a good in a market while assuming that behaviors in other markets remain fixed and often fail to capture many of the critical interactions between markets.

A computable general equilibrium (CGE) model is the empirical implementation of the general equilibrium framework using known data for a region. The CGE model used in this report is based on the neoclassical approach of Lofgren, Harris, and Robinson (2002) and closely follows the methodology used in two state CGE models - the Oregon Tax Incidence Model and the Idaho and Washington State CGE model. The structure of the model also closely follows conventions suggested by recent literature on the construction and application of regional CGE models (Partridge and Rickman, 2010).

Agents in the model include firms, households, and government at the federal, state, and local levels. Investment expenditures are tracked for firms, households, and governments. Firm output is assumed to follow a constant elasticity of substitution-type (CES) production function where intermediate inputs are used in fixed proportions and capital and labor substitution is possible across industries. Production elasticities dictate the degree of substitution between inputs. Production elasticities between intermediate and value added inputs are set to 0.85, and between capital and labor inputs, 0.99. The quantity of capital and labor used in production is determined by the market clearing price for each factor.

Both final and intermediate demand for commodities is satisfied by an aggregate mix of locally-produced and imported commodities. An Armington CES aggregation function allows for substitution between imported and locally produced goods by both firms and households. The model further uses an Armington CES function to differentiate between domestic imports (within the United States but outside the local region) and foreign imports (from outside the country), with the price of foreign imports fixed. Substitutability between locally produced goods and imports is determined by industry-specific elasticities.

Consumers purchase goods and services so as to maximize utility subject to a budget constraint using a Stone-Geary utility function. The Stone-Geary function provides a linear expenditure system for modeling expenditures on goods and services as a linear function of prices and income. A Frisch parameter of -1.0 is used to suggest a low level of subsistence spending (Frisch, 1959).

Households receive income in exchange for labor, as a return on capital, from the production of commodities, from government and households transfers, and from transfers from outside the region. Households spend their income on the purchase of commodities, tax payments to federal, state and local governments, for savings and investment, and as transfers to other households and institutions inside and outside the region. Household savings is a fixed proportion of after-tax household income.

Exports by commodity are derived using a constant elasticity of transformation (CET) production function and are a function of the ratio of local prices and export prices. A second, nested, CET function allocates exports between the rest of the world and the rest of the U.S. Elasticities specify the extent to

which locally produced goods and services are substitutes for goods produced outside the region. The model employs a “small country” assumption where the foreign exchange rate is assumed fixed and not affected by changes in trade activity within the local region. Because the exchange rate is fixed, the local region’s current account is allowed to balance through changes in foreign savings.

Federal government revenue derived from the local region is determined by household income tax and indirect tax payments, while federal government purchases of commodities are adjusted to maintain the base year budget balance. State and local government revenue is the sum of income tax, sales and use tax, factor income, and indirect income tax revenue. State and local government spending must balance with revenue and adjusts through changes in the consumption of commodities.

A critical issue in adapting the CGE methodology to a regional economy is anticipating the various ways in which the economy will adjust to the proposed changes in the system. These ‘model closures’ dictate the behavior of the model as a change in one sector is transmitted to the remainder of the model. The model assumes that both labor and capital are mobile between sectors, such that both tend to migrate to those sectors that provide the highest returns. Returns to labor and capital are reflected in relative wage and rental rates across sectors. Wage rates and the rental rates on capital are allowed to float and balance the respective market as needed. Consequently, the labor market is assumed to clear, which eliminates the possibility of long-term involuntary unemployment in the model. The savings-investment closure assumes that the amount of local savings does not have to equal local investment. The foreign exchange closure assumes that trade activity generated within the region does not impact the foreign exchange rate. Foreign savings is assumed flexible and balances the foreign exchange market requirements in the local region. Because closures determine to a large extent the simulation results and policy conclusions formed when using the model, base case closures are typically established and then relaxed in order to assess the sensitivity of the model results.

The model is implemented in GAMS using a social accounting matrix (SAM) for the state of Oklahoma derived from the 2011 IMPLAN input-output model. The aggregated CGE model used in the simulations contains twenty-six industry sectors (5 government and 21 private sectors) and closely follows the 2-digit NAICS industry classification system. The manufacturing sector is split between durable and nondurable goods.

Frisch, Ragnar. 1959. “A Complete Scheme for Computing All Direct and Cross Demand Elasticities in a Model with Many Sectors.” *Econometrica*, Vol. 27, pp.177-196.

GAMS Development Corporation. [www.gams.com](http://www.gams.com).

Lofgren, Hans, Rebecca Lee Harris, and Sherman Robinson, 2002. “A Standard Computable General Equilibrium (CGE) Model in GAMS.” Washington, D.C.: International Food Policy Research Institute.

Partridge, Mark and Dan Rickman. 2010. “Computable General Equilibrium (CGE) Modeling for Regional Economic Development Analysis.” *Regional Studies*, Vol. 44, pp.1311-1328.



## X. Endnotes

- <sup>1</sup> See the original language of the amendment online: <http://law.justia.com/constitution/oklahoma/X-6B.html>
- <sup>2</sup> Oklahoma statutes are available online: <http://www.oklegislature.gov/osstatuestitle.aspx>
- <sup>3</sup> Available online:  
[http://www.oksenate.gov/publications/legislative\\_briefs/legis\\_brief\\_2002/property\\_tax\\_reimbursement.html](http://www.oksenate.gov/publications/legislative_briefs/legis_brief_2002/property_tax_reimbursement.html)
- <sup>4</sup> Available online: [http://www.oksenate.gov/publications/senate\\_studies/14-50/Elgin%20PS%20-%20Ad%20Valorem%20Info.pdf](http://www.oksenate.gov/publications/senate_studies/14-50/Elgin%20PS%20-%20Ad%20Valorem%20Info.pdf)
- <sup>5</sup> Available online: <http://www.scribd.com/doc/224964110/Oklahoma-FY-15-APPROPRIATED-STATE-BUDGET-AGREEMENT-SUMMARY>
- <sup>6</sup> Available online: <http://www.okhouse.gov/Documents/InterimStudies/2011/11-039%20report.doc>
- <sup>7</sup> Input purchases are estimated from the IMPLAN 2011 dataset for the state of Oklahoma.
- <sup>8</sup> See Bureau of Economic Analysis Regional Economic Data. Available online:  
<http://www.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdrn=4#reqid=70&step=10&isuri=1&7003=600&7035=-1&7004=naics&7005=12&7006=40000&7036=-1&7001=1600&7002=1&7090=70&7007=2012&7093=levels>
- <sup>9</sup> Available online on a subscription basis: <http://c2er.org>
- <sup>10</sup> A recent news report indicates that Connecticut provides for reimbursement of local property taxes for manufacturing related investment. We are able to identify a property tax reimbursement program in Connecticut for individuals, but are unable to find evidence of such a reimbursement program for business investment. See: <http://capitolbeatok.com/reports/seeking-to-define-the-word-reimbursement-task-force-looks-at-successful-incentive-program-and-who-be>. See statutes governing Connecticut property assessment and taxation online at: <http://www.ct.gov/opm/cwp/view.asp?q=383128>
- <sup>11</sup> For a discussion of the Kansas exemption see: <http://www.ksrevenue.org/pdf/2011statbinderall.pdf>
- <sup>12</sup> See: <http://www.mainelegislature.org/legis/statutes/36/title36sec661.html>
- <sup>13</sup> See: [http://taxfoundation.org/sites/default/files/docs/bp63\\_TPP\\_Tax\\_Statutory\\_Citation\\_Guide.pdf](http://taxfoundation.org/sites/default/files/docs/bp63_TPP_Tax_Statutory_Citation_Guide.pdf); and <http://mgaleg.maryland.gov/webmga/frmStatutesText.aspx?article=gtp&section=9-103&ext=html&session=2014RS&tab=subject5>
- <sup>14</sup> The Committee's 2011 report is available online: <http://www.digitalprairie.ok.gov/cdm/ref/collection/stgovpub/id/217591>
- <sup>15</sup> This is the average ratio of output to capital across all sectors of the U.S. manufacturing industry.
- <sup>16</sup> More specifically, the General Counsel's office directed us to Title 68, Section 205 of the Oklahoma Statute: "The records and files of the Oklahoma Tax Commission concerning the administration of the Uniform Tax Procedure Code or of any state tax law shall be considered confidential and privileged, except as otherwise provided for by law, and neither the Tax Commission nor any employee engaged in the administration of the Tax Commission or charged with the custody of any such records or files nor any person who may have secured information from the Tax Commission shall disclose any information obtained from the records or files or from any examination or inspection of the premises or property of any person." Available online: [http://oklegal.onenet.net/oklegal/cgi/get\\_statute?99/Title.68/68-205.html](http://oklegal.onenet.net/oklegal/cgi/get_statute?99/Title.68/68-205.html)
- <sup>17</sup> We define manufacturing to include the relatively small number of firms qualifying for the exemption as a research and development firm.
- <sup>18</sup> Real and personal assets for agricultural use are \$16.36 billion; assets for residential use are \$123.48 billion in 2012.
- <sup>19</sup> Application denial counts for the 2009-2014 tax years were provided by the Oklahoma Tax Commission – Office of the General Counsel.
- <sup>20</sup> We treat Le Flore and Sequoyah counties as non-metro despite their inclusion as part of the Ft. Smith metropolitan area. Both counties remain overwhelmingly rural. For 2013, no exemptions were received by firms in either county.
- <sup>21</sup> Considerable effort was made to correctly identify all listed firms. Some firms listed as unique will undoubtedly share ownership with other firms. Many are related but operate under distinctly separate corporate identities.
- <sup>22</sup> A small number of firms engaged in research and development are included along with manufacturing firms to maintain consistency with the practice of the Tax Commission.
- <sup>23</sup> Exemptions provided to wind power are similarly compatible with the energy ecosystem; distribution centers and data centers are also compatible with the state's ecosystems in information and financial services and transportation and distribution. A detailed description of the research underlying Oklahoma's targeted Key Business Ecosystems is available online: <http://okcommerce.gov/location-or-expansion/oklahomas-business-ecosystems/>
- <sup>24</sup> See: Larkin Warner and Robert C. Dauffenbach. "Two Oklahoma Incentives for Economic Development: Introduction to Ad Valorem Tax Exemption and Quality Jobs Act;" and Robert C. Dauffenbach and Larkin Warner. "Oklahoma's Ad Valorem Tax Exemption and the Quality Jobs Act: Analysis of Economic Impacts and Tests for Differential Growth." Chapters 1 and 2 of *State Policy and Economic Development in Oklahoma: 2004*. Feb. 2004, pp. 13-28. Oklahoma 21st Century, Inc.
- <sup>25</sup> For example, see p.16 of the following report from the Oklahoma Policy Institute where it concludes, in part from the results of this work, that the ad valorem exemption program is ineffective on economic grounds:  
[http://okpolicy.org/files/taxexpend\\_full.pdf](http://okpolicy.org/files/taxexpend_full.pdf)
- <sup>26</sup> Exceptions to this might be the case of an exemption playing a key role in convincing a large employer to remain in the state or not shutdown a facility.

<sup>27</sup> The share for expenses on existing buildings is an estimate based on discussions with professionals in the commercial real estate sector.

<sup>28</sup> This estimate is for durable goods purchases within the state of Oklahoma. Based on the 2011 IMPLAN dataset for Oklahoma, roughly 40% of all durable goods produced in the state are purchased within the state.

<sup>29</sup> Nonetheless, a shift in the composition of state spending could have a very slight positive or negative impact on total state economic activity depending upon the type of state spending it is assumed to have displaced.

<sup>30</sup> For purposes of the impact assessment, we are ignoring recent extended delays in forwarding the revenue to counties following the recent national recession. This slows the timing of the payments but does not alter the overall conclusions about net economic impact.

<sup>31</sup> For 2012, the Bureau of Economic Analysis reports that the U.S. manufacturing sector produced \$5.8 trillion in gross output using \$2.25 trillion in equipment and structures. The actual ratio differs across industries and across firms within a given industry.

<sup>32</sup> The output estimate is derived from multiple years of the IMPLAN input-output model dataset for Oklahoma.

<sup>33</sup> We follow the general approach used by the Bureau of Economic Analysis in estimating depreciation for the construction of national economic account statistics. These estimates reflect the useful life of production equipment and expected resale values. See details online: <http://www.bea.gov/national/FA2004/Tablecandtext.pdf>. Most equipment used in manufacturing is typically depreciated using an average service life of 15 years (annual depreciation rate of about 12.5%), and non-residential structures over a 40 year service life (annual depreciation factor of about 2.5%).

<sup>34</sup> We assume annual depreciation factors of 2.5% for structures and 12.5% for equipment.

<sup>35</sup> Some are also likely to last less than five years, though we assume these firms will likely leave the program and will be accounted for.

<sup>36</sup> An exception to the rules was provided for firms denied an exemption for 2009 to receive an additional year of exemption beginning in 2012. This is visible in the data for the 2009 cohort in the form of a slight jump from 2011 to 2012 in the number of incentives approved.

<sup>37</sup> Input-output analysis is most appropriate when the policy change or stimulus does not alter production patterns, product prices, input prices, wage rates, or cost of capital. It is generally most useful when there are no capital or labor constraints.

<sup>38</sup> An IMPLAN input-output model of the Oklahoma economy (2011 dataset) is used. Industries are aggregated to approximately 2-digit NAICS sectors. Manufacturing is split into durable and nondurable sectors.

<sup>39</sup> The model assumes an increase in output in the Construction of New Nonresidential Manufacturing Facilities of \$203.69 million; increase in output of \$3.339 million in Finance and Insurance; and an increase of \$90.53 million in Durable Goods Manufacturing.

<sup>40</sup> In describing the spillover impacts, the upfront investment purchases are deemed “direct” impacts. These direct impacts in turn generate additional economic activity referred to as “indirect” and “induced” spillover, or multiplier, effects. The indirect effect is the statewide inter-industry economic activity resulting from purchases by the industries receiving the investment, while the induced effect reflects the economic activity resulting from new household spending out of employee earnings received as part of the direct and indirect effects. For convenience, the spillover impacts are typically summarized using economic impact multipliers. The multipliers quantify the amount of spillover activity resulting from each dollar of new activity. The indirect and induced effects are derived using Type I [(direct + indirect)/direct] and Type II multipliers [(direct + indirect + induced)/direct], respectively.

<sup>41</sup> CGE models have been used to examine the impact of child care in Oklahoma: Rickman, Dan S. and Mark C. Snead. “A Regional Comparative Static CGE Analysis of Subsidized Child Care.” *Growth and Change*. Mar. 2007. Vol. 38, No. 1, pp. 111-139. The CGE model used in this study was also used to examine the impact of tribal retail sales in Oklahoma. See: Snead, Mark C. 2007. “Tax Exempt Tribal Retail Sales: An Economic Assessment of the Impact on Shawnee, Oklahoma.” The model is described in more detail in the report available online at: <http://www.regiontrack.com/www/tribal-retail-activity/>