State of Oklahoma
Incentive Evaluation Commission
Cybersecurity Employee Tax Credit Draft Evaluation

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Incentive Overview

In 2020, Oklahoma' created a tax credit for cybersecurity personnel to seek to expand its cybersecurity skilled workforce. The credit is $2,200 for seven years for those with a qualified bachelor's degree or higher and $1,800 for those with an associate's degree, a credential, or certificate from an approved accredited program.

Recommendation: Retain.

Key Findings

- **While the growth in cybersecurity employment in Oklahoma outpaces the nation as a whole, a skills gap prevails in the industry.** The Oklahoma Board of State Regents for Higher Education has noted a need for more graduates in technology fields, and a study by Deloitte and the manufacturing industry identified a nationwide skills gap of roughly 2.0 million jobs between 2015 and 2025.[1] Software and cybersecurity employees are instrumental for companies across sectors as the technology adoption and data needs intensify. Specific sectors in Oklahoma, like aerospace and defense, may require more cybersecurity and software personnel due to the highly technical nature of the work.

- **The number of returns for the cybersecurity employee tax credit has been growing since the credit's inception in 2020.** Total claimants have grown from 46 to 939 between tax years 2020 and 2023. Simultaneously, the amount claimed has grown from $95,995 to $2.2 million. Growth in credit claimants exceeds industry employment growth. Some of this is attributable to repeat users, as the credit is available for seven years.

- **Cybersecurity and software industry employment has been increasing in recent years. Between 2020 (the year the credit became available) and 2024, Oklahoma's 9.3 percent compound annual growth rate (CAGR) significantly exceeded the 6.8 percent national growth rate.** Prior to the availability of the credit, the industry employment CAGR in Oklahoma was slightly lower, at 8.4 percent.

- **While Oklahoma firms have exhibited success in recruiting software and cybersecurity employees, they have not kept pace with the compensation increases seen in other Oklahoma industries or with national compensation trends.** Average information security analyst pay in Oklahoma, at $86,500 in 2024, is lower than in its bordering states and significantly trails the $124,901 national average.

- **The total economic activity associated with employees claiming the credit exceeds the program cost, as measured by the annual amount claimed.** Between tax years 2020 and 2023, employment claiming the credit was associated with between $78 and $101 in economic output for every $1 in credit claimed. However, not all of the employees claiming the credit represent roles that would not have been created or sustained but for the incentive program.

- **The total State tax revenue associated with employees claiming the credit exceeds the program cost to the State, as measured by amounts claimed.** Between tax years 2020 and 2023, every $1.00 of credit claimed was associated with between $2.73 and $3.29 in State tax revenues. Applying a breakeven analysis to understand the level of program activity that would be required for the state to 'break even' on the cost indicates that at least 30.4 percent of claimants must be attributed to the incentive program for the program to generate a positive return on investment.

[1] U.S. News and World Report, "Bridging the STEM Skills Gap Involves Both Education and Industry Commitments," (July 9, 2018). Available at https://www.usnews.com/news/stem-solutions/articles/2018-07-09/commentary-industry-education-needed-to-bridge-stem-skills-gap

- **Oklahoma's tax credits for cybersecurity and software employees are unique compared to surrounding states.** While similar programs exist in larger technology and cybersecurity hubs like New York and the Washington DC metro area, no comparable programs exist in nearby states. Other states, like Colorado, offer grants to eligible companies to support job creation or, like California, fund workforce development and education initiatives to build strong talent pipelines. Maryland and Virginia also fund cyber initiatives aimed at workforce development through educational partnerships to align career pathways with industry needs.

- **An alternate state approach is to incent cybersecurity businesses rather than employees.** Maryland offers seed funding and income tax credits to attract early-stage cybersecurity businesses, while Virginia attracts cybersecurity entrepreneurs through a business accelerator program, highlighting the variety of approaches to attracting cybersecurity companies and personnel.

- **Cybersecurity is a high-demand industry with strong market momentum and high paying jobs, indicating that tax credits for individual employees are likely not the deciding factor for talent attraction and retention.** Nationally, cybersecurity employment is projected to grow by 33 percent between 2023 and 2033, significantly higher than projected average employment growth of 4 percent for all other industries.[2] This growth underscores the already existing industry inertia, suggesting that a tax incentive may be unnecessary for attracting employees.

- **Key stakeholders noted confusion among claimants regarding accredited programs and credit eligibility.** Despite information provided, many claimants still struggle with interpreting the language on eligibility, or hold degrees that seem eligible, like a Master of Science in Information Systems (MSIS), but from ineligible schools, like a business school.

Recommendations

- **To enhance program compliance, provide a list of frequently asked questions with the tax form and on the Oklahoma Tax Commission website in order to avoid confusion around eligibility from applicants.** While audit data on this program is not available, several key stakeholders noted that the by-right nature of the program coupled with the lack of simplicity in identifying program eligibility may contribute to a high volume of ineligible claimants. A list of frequently asked questions or centralized repository to review eligible and ineligible programs and credits may serve to deter this activity.

While the project team recommends retaining the incentive, there are concerns within some of the data and with the incentive design. As it relates to design, it is difficult to attach a lot of impact from employment gains to the incentive. At $2,200 a year, it is certainly not as substantial as the industry wage gap that exists between Oklahoma and its surrounding states. This suggests that, at least, it will be unlikely to draw talent within the sector into the state from surrounding states. On the other hand, employment growth has exceeded the national average, and there is a requirement that for employees to take the credit, their employer has to pay at least 110 percent of the county average wage. It remains to be seen if the current employment growth is simply the result of a 'hot' industry that would attract students and workers regardless of the credit.
The credit is still relatively new, and it is generally not prudent to base decisions on rescinding an incentive on just a few years of data. This will likely come back up for evaluation in 2029 (or sooner if the Commission so chooses. That evaluation will still occur prior to the 2030 sunset. In the meantime, the $2.5 million cap is still in place, so the financial impact on the state is restrained.

[2] BLS Occupational Employment Statistics data for Information Security Analysts (Standard Occupational Classification code 15-1212). Estimates do not include self-employed workers.

Introduction

Incentive Evaluation Commission Overview

The Oklahoma Incentive Evaluation Commission (Commission) was created by HB 2182 of 2015 to produce objective evaluations of the State of Oklahoma's wide array of economic incentives. The Commission is made up of five members appointed by the Governor, President Pro Tempore of the Senate and Speaker of the House of Representatives, along with representatives of the Department of Commerce, Office of Management and Enterprise Services and Tax Commission.

Under the enabling legislation, each of the State's economic incentives must be evaluated once every four years according to a formal set of general criteria, including (but not limited to) economic output, fiscal impact, return on incentive and effectiveness of administration, as well as criteria specific to each incentive.

Since the Commission's inception, it has contracted with PFM Group Consulting LLC (PFM) to serve as the independent evaluator of each incentive scheduled for review in a given year. PFM issues a final report on each incentive with recommendations as to how Oklahoma can most effectively achieve the incentive's goals, including recommendations on whether the incentive should be retained, reconfigured or repealed; as well as recommendations for any changes to State policy, rules or statutes that would allow the incentive to be more easily or conclusively evaluated in the future.

The Commission is charged with considering the independent evaluator's facts and findings – as well as all public comments – before voting to retain, repeal or modify each inventive under review. It then submits a final report to the Governor and Legislature.

The State's Software/Cybersecurity Workforce Tax Credit, established in 2019 and amended in 2020, has not been previously evaluated. Based on this evaluation and their collective judgment, the Commission will make recommendations to the Governor and the Legislature related to this incentive.

2025 Criteria for Evaluation

The provisions of HB 2182 require that criteria specific to each incentive be used for the evaluation. A key factor in evaluating the effectiveness of incentive programs is to determine whether they are meeting the stated goals as established in state statute or legislation. In the case of this tax credit, the specific goal included in legislation is address the statewide shortage of qualified software and cybersecurity professionals by incentivizing individuals to work in Oklahoma in these fields.[3]

Additionally, to assist in a determination of program effectiveness, the Commission has adopted the following criteria:

- Number and dollar value of approved credits by year of program;
- Employment growth in state cybersecurity and software jobs – comparison to period prior to the credit and comparable states;
- Payroll growth in state cybersecurity and software industry – comparison to period prior to the credit and comparable states;
- Cost to the State by fiscal year;
- Economic impacts of jobs created or retained.

[3] 68 OK Statute § 2357.405 (2024)

2025 Evaluation Approach

To conduct its 2025 review of this tax credits, the project team conducted the following activities:

- Submitted a data request to the Oklahoma Tax Commission (OTC) and Department of Commerce;
- Reviewed and analyzed provided data;
- Completed subject matter expert/internal stakeholder interviews with representatives from the OTC and Department of Commerce;
- Benchmarked Oklahoma to other states.

Industry Background

Oklahoma Software/Cybersecurity Background and History

As the aerospace industry expanded in Oklahoma following World Wars I and II, the State became a national locus, with two large industrial facilities built in the State to manufacture bombers for the U.S. Army Airforce. One of the facilities ultimately became Tinker Air Force Base, the largest aircraft maintenance complex and military-aviation logistics center in the world.[4] Oklahoma's software and cybersecurity industries' early growth was largely tied to the aerospace and defense industries. Dating back to the end of the 20th century, initial aircraft testing in the State required specialized software solutions. As a result of aviation and defense growth, the software/cybersecurity industry grew significantly, evolving over the past few decades as new technology has accelerated the need for innovation, workforce development, and infrastructure protection.

The Software and Cybersecurity Skills Gap

The "skills gap" defines a fundamental mismatch between the skills that employers rely upon in their employees, and the skills that job seekers possess. This mismatch makes it difficult for individuals to find jobs and for employers to find appropriately trained workers.[5]

The skills gap related to science, technology, engineering and math (STEM) professions is well-documented. According to one report by Randstad U.S., as of 2016, the U.S. had roughly 3.0 million more STEM jobs than it had workers to fill them.[6] More recently, a study by Deloitte and the Manufacturing Institute found that there are an estimated 3.4 million STEM jobs to be filled from 2015 to 2025 – and only 1.4 million qualified workers to do so.[7] According to an analysis by the Oklahoma State Regents for Higher Education, "Oklahoma is still in need of more traditional STEM graduates." The study found that one-year retention rates of STEM degree holders at all degree levels are lower than those rates for all fields combined.[8]

The preceding findings relate generally to STEM professions, but the challenges apply specifically to the cybersecurity industry. According to the World Economic Forum's Global Cybersecurity Outlook 2025, "67 percent of organizations report a moderate-to-critical skills gap in cybersecurity."[9] An IBM report identified the cybersecurity and software skills gap as a major driver behind the rising cost of data breaches in recent years, noting the "need for trained security staff…growing as the threat landscape widens."[10] Both the race to adopt artificial intelligence (AI) and the need to anticipate its risks put additional strain on teams, highlighting the need for continued growth and intentional workforce development in the industry.

Despite these observations and the Oklahoma State Regents for Higher Education finding that Oklahoma is still in need of more traditional STEM graduates, data shows that, in recent history, the number of degrees

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[4] The University of Tulsa Department of Special Collections and University Archives, "The Rise of the Aerospace and Aviation Industries in Oklahoma," (February 18, 2013). Available at http://orgs.utulsa.edu/spcol/?p=2798

[5] The Brookings Institution, "Understanding the Skills Gap – and What Employers Can Do About It," (December 6, 2019). Available at https://www.brookings.edu/research/understanding-the-skills-gap-and-what-employers-can-do-about-it/

[6] Randstad U.S., "Employers Must Redefine STEM to Attract Future Talent, According to New Randstad U.S. Data," (August 2017). Available at https://rlc.randstadusa.com/press-room/press-releases/employers-must-redefine-stem-to-attract-future-talent-according-to-new-randstad-us-data

[7] U.S. News and World Report, "Bridging the STEM Skills Gap Involves Both Education and Industry Commitments," (July 9, 2018). Available at https://www.usnews.com/news/stem-solutions/articles/2018-07-09/commentary-industry-education-needed-to-bridge-stem-skills-gap

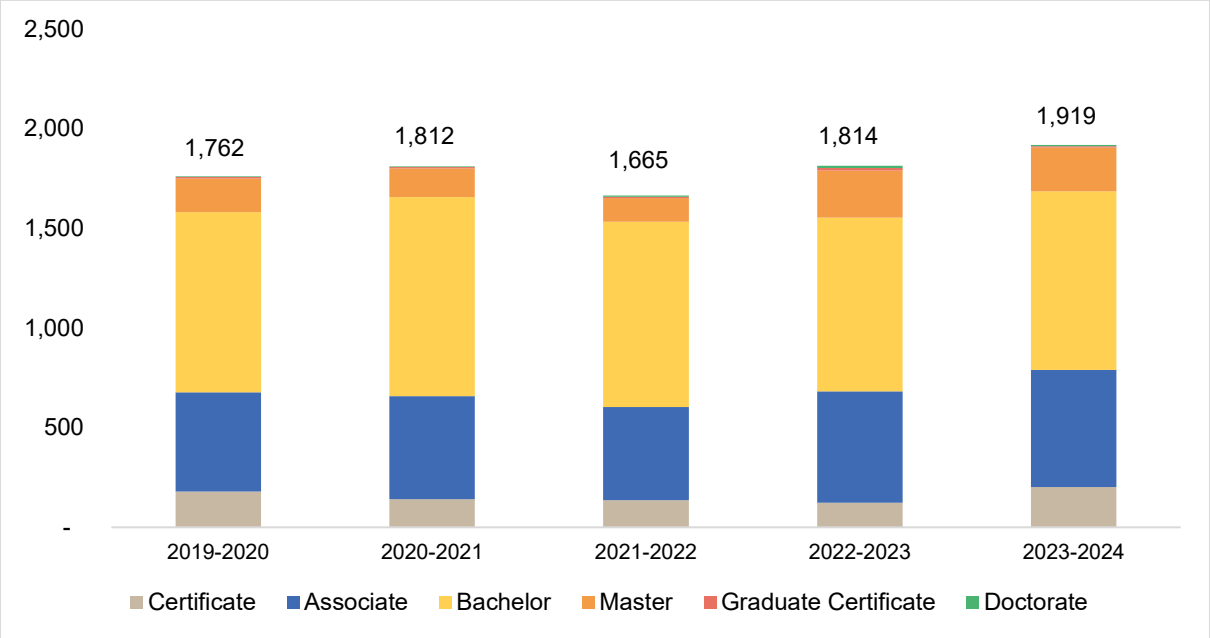
[8] Oklahoma State Regents for Higher Education, "Employment Outcomes Report, 2018," (June 27, 2019). Available at https://www.okhighered.org/studies-reports/employment-outcomes/employrpt2018.pdf

[9] World Economic Forum "Global Cybersecurity Outlook 2025." Available at https://initiatives.weforum.org/bridging-the-cyber-skills-gap/home

[10] IBM, "The cybersecurity skills gap contributed to a USD 1.76 million increase in average breach costs," (October 17, 2024). Available at https://www.ibm.com/think/insights/cybersecurity-skills-gap-contributed-increase-average-breach-costs.

conferred at the state's public institutions in software- and cybersecurity-related fields of study is trending upward. Across all degree levels, total degrees conferred have increased by a compound annual growth rate (CAGR) of 2.2 percent. Bachelor's degrees account for the majority, representing between 47 and 56 percent of all degrees conferred, depending on the year. Associate's degrees account for an additional 28 to 31 percent.

Figure 1: Degrees Conferred at Oklahoma Public Institutions, Cybersecurity-Related Fields of Study*



Source: Oklahoma State Regents for Higher Education
** Fields of study include Computer and Information Sciences and Support Services, Engineering/Engineering-Related Technologies and Technicians*

Software and Cybersecurity Employment and Pay

According to the BLS,[11] information security (IS) analysts 'plan and carry out security measures to protect an organization's computer networks and systems.' Their roles and responsibilities include:

- Monitor their organization's networks for security breaches and investigate when one occurs;
- Use and maintain software, such as firewalls and data encryption programs, to protect sensitive information;
- Check for vulnerabilities in computer and network systems;
- Research the latest information technology (IT) security trends;
- Prepare reports that document general metrics, attempted attacks, and security breaches;
- Develop security standards and best practices for their organization;
- Recommend security enhancements to management or senior IT staff;
- Help computer users when they need to install or learn about new security products and procedures.

In 2024, there were an estimated 179,430 IS analyst jobs in the U.S. Due to their essential nature across industries, these analysts are spread across sectors, with the largest employers being computer systems

[11] BLS, "Occupational Outlook Handbook: Aerospace Engineers." Available at https://www.bls.gov/ooh/architecture-and-engineering/aerospace-engineers.htm?view_full#tab-2

design and related services, representing 22 percent of IS analyst employment. Other large employers were finance and insurance institutions and information companies, collectively representing 25 percent of employment.

While every enterprise may need some IS personnel to navigate the business' network and system needs, some industries, like defense or aerospace, may require more personnel due to the highly technical nature of the work. This suggests a more critical need for IS analysts in Oklahoma due to the prominence of the State's defense and aerospace sectors.

IS analyst employment is projected to grow by 33 percent between 2023 and 2033, significantly faster than the projected 4 percent average for all occupations. According to the BLS, growth in cyberattacks will require software and cybersecurity personnel to create more innovative solutions. Additionally, 'as businesses focus on enhancing cybersecurity, they will need information security analysts to secure new technologies from outside threats or hacks.' Finally, traditional computer occupation growth is projected to grow at 12 percent, emphasizing the outsized importance of software and cybersecurity personnel in computer-related occupations.

Information Security Analyst Employment

Location quotients compare the concentration of an industry within a specific area to the concentration of that industry nationwide.[12] According to BLS estimates, as of the most recent available data from May 2024, Oklahoma had 1,270 IS analysts.[13] Oklahoma ranks 36th among states for location quotient (0.64) and employment per 1,000 jobs (0.75). The occupation's top states for are Virginia, Maryland, New Mexico, and the District of Columbia.

Between 2020 and 2024, IS analyst employment in Oklahoma increased by a CAGR of 9.3 percent – significantly higher than the U.S. occupation CAGR of 6.8 percent.[14] Between 2014 and 2020 (the year prior to when Oklahoma's incentives were first offered), employment increased by a CAGR of 8.4 percent. Following the implementation of the credits in 2020, employment has increased by a CAGR of 9.3 percent.

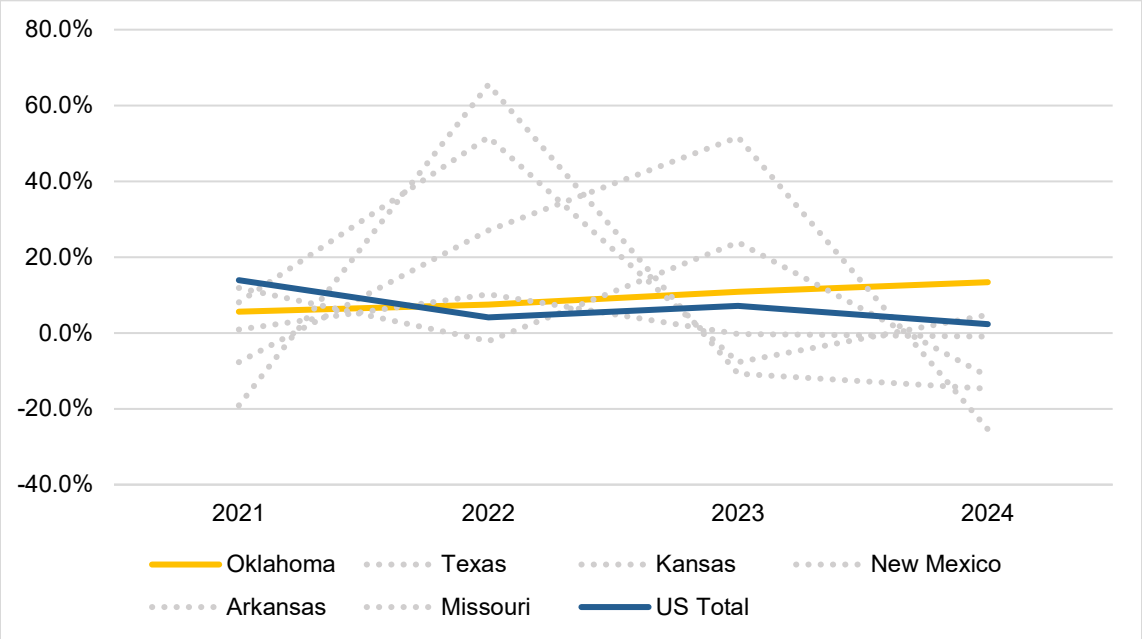
While Oklahoma's IS analyst employment growth has remained relatively steady over time, neighboring states have seen more dramatic spikes and plummets in their workforces. This is demonstrated in Figure 2.

[12] These ratios allow an area's distribution of employment by industry, ownership and size class to be compared to a reference area's distribution. If a location quotient is equal to 1, then the industry has the same share of its area employment as it does in the nation. A location quotient greater than 1 indicates an industry with a greater share of the local area employment than is the case nationwide.

[13] BLS Occupational Employment Statistics data for Information Security Analysts (Standard Occupational Classification code 15-1212). Estimates do not include self-employed workers.

[14] BLS Occupational Employment Statistics data for Information Security Analysts (Standard Occupational Classification code 15-1212). Estimates do not include self-employed workers.

Figure 2: Information Security Analyst Employment Growth, 2020-2024

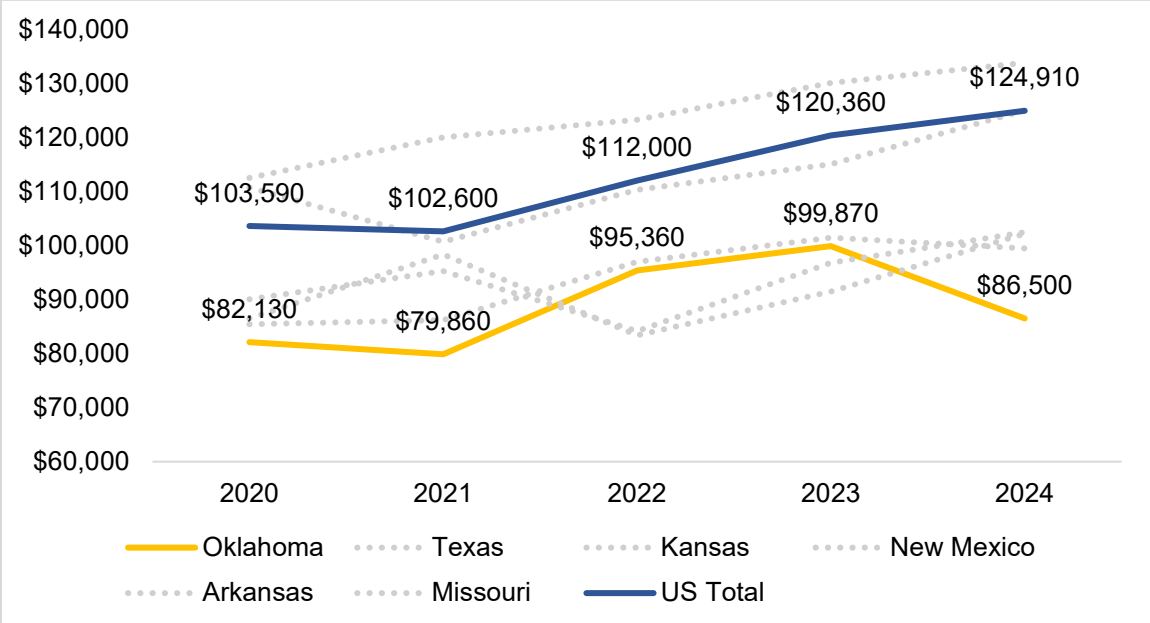


Source: BLS Occupational Employment Statistics data for Information Security Analyst (SOC code 15-1212)

Information Security Analyst Pay

According to BLS estimates, as of 2024, the average wage of Oklahoma's IS analysts was roughly $86,500. Compared to other states, Oklahoma's occupation average wage for IS analysts is low. Among neighboring states, average wages are lowest in Oklahoma. Despite significant average wage growth between 2021 and 2023, they decreased in 2024.

Figure 3: State Rankings, Information Security Analyst Pay, 2020-2024



Source: BLS Occupational Employment Statistics data for Information Security Analyst (SOC code 15-1212)

While Oklahoma firms have had success recruiting IS employees, they have not kept pace with the compensation increases seen in other occupations within Oklahoma as well as with national IS analyst compensation trends.

Industry Background Summary

Software and cybersecurity employees play an increasingly vital role in Oklahoma's economy, and the industry has seen employment growth outpacing the national average, particularly since the introduction of the tax credit program. Despite this, Oklahoma continues to exhibit less favorable industry trends, including consistently low location quotient and lower than average jobs per 1,000. Additionally, while Oklahoma firms have had success recruiting information security employees, they have not kept pace with the compensation increases seen in other occupations within Oklahoma as well as with national information security compensation trends.

Incentive Usage and Administration

Incentive Characteristics

In the beginning of the 21st century, Oklahoma's industries increasingly encountered a lack of qualified cybersecurity personnel, posing a significant cyber risk and an impediment to growth. In response to this issue, effective January 1, 2020, the State enacted a tax credit program for qualified cybersecurity and software employees, based on their level of education:

Table 1: Summary of Tax Credits for Software and Cybersecurity Employees

Credit Amount	Education Requirement
$2,200	A qualified software or cybersecurity employee who has been awarded a bachelor's or higher degree from an accredited program at a degree-producing institution.
$1,800	A qualified software or cybersecurity employee who has been awarded an associate's degree from an accredited program at a degree-producing institution or a credential or certificate from an accredited program at a technology center.

Source: 68 O.S. § 2357.405

Employer Qualifications
Qualified employers must be a sole proprietor, general partnership, limited partnership, limited liability company, corporation or other legally recognized business entity, or governmental entity that has at least fifteen full-time employees.

Employee Qualifications
A qualified employee must have been awarded a degree or certification from an institution accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) or a technology center in the Oklahoma State Board of Career and Technology Education that offers eligible accredited programs. Accredited programs include an undergraduate or graduate cybersecurity, information technology, computer science, or computer engineering degree program accredited by the Computing Accreditation Commission or the Engineering Accreditation Commission of ABET, or a software, cybersecurity, programming, software programming, coding, application development, computer science, or information technology program requiring more than 800 hours of class time.

The statutory definition further requires that qualifying compensation means average annualized wages by a qualified employer which meet or exceed 110 percent of the average county wage, as determined by the Oklahoma Department of Commerce. To be eligible for the tax credit, employees must be employed in the industry on or after November 1, 2019.

The tax credit may be taken for up to seven years. The aggregate amount of credits taken in a fiscal year is capped at $5 million.[15] The program is scheduled to sunset on January 1, 2030.

Historic Use of the Tax Credit

As shown in the following table, the incentive's use has increased in recent years – both in terms of the number of returns (by a CAGR of 173 percent) and the amount used to reduce tax liability (by a CAGR of 226

[15] While many tax credits with a cap provide for pro-ration of the credit should the requests exceed the dollar cap, statute provides that credit amounts above the cap will be accommodated and the amount of credits available in the following year adjust downward. For example, if $6 million in cap requests were made in a fiscal year (exceeding the cap by $1 million), the $6 million would be awarded in that year, but the amount available in the following year would be adjusted downward by $1 million, to $4 million.

percent). Some of this is likely driven by repeat users of the credit, which is available for up to seven years, though data is not available to confirm this trend. The average amount used to reduce tax liability has increased steadily over time, from an average of $1,281 in 2020 to a preliminary average of $2,171 in 2023. This is primarily driven by an increase in the amount used to reduce tax liability as a percent of the total amount claimed, which has increased from 61.4 percent in 2020 to 94.3 percent in 2023. The split between degree and career tech recipients has remained relatively consistent at 85-15 percent throughout the credit history, as shown in Table 2.

Table 2: Usage of Tax Credits for Software/Cybersecurity Employees, 2020-2023

Tax Year	Number of Returns	Credit Established, Current Tax Year	Total Claimed	Amount Used to Reduce Tax Liability	Estimated Degrees	Estimated Career Tech
2020	46	$95,995	$95,995	$58,936	86.67%	13.33%
2021	156	$326,096	$326,096	$242,081	83.12%	16.88%
2022	226	$481,420	$481,420	$390,124	87.61%	12.39%
2023	939	$2,161,712	$2,161,712	$2,038,571		
Avg.	342	$766,306	$766,306	$682,428	85.80%	14.20%

Source: Oklahoma Tax Commission

Incentive Administration

The tax credit is jointly administered by the OTC and the Oklahoma Department of Commerce. Based on conversations with both, the OTC is responsible for the day-to-day administration of the program, while Commerce aids individuals in navigating program eligibility and qualifying credentials.

Application for Credit
To claim the credits, qualified employees must fill out and submit Form 566 (Credit for Qualified Software or Cybersecurity Employees). The form collects the following information:

- Part 1: Qualified Employer
  - Name
  - Federal Employer Identification Number
  - Dates employed in Oklahoma (from and to)
- Part 2: Accredited Program
  - Program name
  - Date graduated
  - Location (city and state)
  - Accredited program
  - Degree, certification, or credential (ABET accredited)
- Part 3: Credit Computation
  - Credit for employment for tax year (based on degree)

All claimants must also fill out the applicable fields of Form 511CR (Other Credits), including (1) unused credit carried over from prior year(s), (2) credit established during the current tax year, and (3) total available credit (the sum of 1 and 2).

OTC Verification and Acceptance of Claims
When the OTC receives the required forms, they review them for accuracy and completeness. According to OTC representatives, if an employee's application is denied, it is generally due to having a degree but not the "right one." This is discussed in the ABET Accreditation Requirement section that follows.

Administrative Issues

ABET Accreditation Requirement
To qualify for the software/cybersecurity employee tax credit, an employee must have been awarded a degree or certificate from an accredited program at a degree-producing institution or technology center. Based on conversations with the Oklahoma Department of Commerce, while many roles may qualify for the credit, the limiting factor is the credentialing component – there are highly qualified individuals working for eligible employers who do not qualify for the tax credit.

Employers may work with the Department of Commerce and the Oklahoma State Board of Career and Technology Education on ongoing credentialing opportunities for their workforce, however, the requirement of 800 hours presents a high bar to entry. The State has sought to address this through offerings like the Training for Industry Program (TIP), which provides specific micro-credential training.[16] While valuable, much of the workforce development for cybersecurity and software personnel takes place outside of traditional academic settings and therefore does not qualify as creditable education.

Simultaneously, the length of the crediting period (7 years) may act as a recruitment tool to maintain a strong workforce pipeline in Oklahoma. While the barrier to credit access is high for non-traditional degree or certificate pursuers, the longer credit period duration may be attractive.

Alignment with Best Practices

The Cybersecurity and Software Employee Tax Credit aligns only partially with the project team's identified best practices for incentive design. The program is targeted to a specific industry, capped at $5 million annually, and has a sunset date. Conversely, the program's eligibility requirements are difficult to ascertain for many claimants, is not discretionary, and does not leverage significant private capital. Additionally, the credit is available for seven years and has no 'front loading'.

Figure 4: Best Practice Implementation in Incentive Program Designs

Best Practice	Cybersecurity
Targeted to specific companies or industries	●
Discretionary	○
Leverage significant private capital	○
Limited duration / front-load benefits to 1-3 years	○
State / Local conditions considered	◌
Overcoming practical barriers to growth	◌
Transparency	◌
Accountability	○
Cap on value of awards	●
Simple and understandable	◌
Sunset on program duration	●

Legend: Dark circle = full adoption, Light circle = partial adoption, Empty circle = limited adoption

[16] The Oklahoma Incentive Evaluation Commission 2023 evaluation of the TIP program may be found at https://oklahoma.gov/content/dam/ok/en/omes/documents/iec/archive/support/2023/TrainingForIndustryProgramEvaluation11172023.pdf

Economic and Fiscal Impact

Fiscal Impact

The amount of the credit used to reduce tax liability averaged $682,000 between Tax Years 2020 through 2023 and has been steadily increasing since the program's inception in 2020. This amount represents foregone tax revenue to the State, as the credit is applied to reduce the tax liability faced by qualified employees. In 2022, the State enacted an annual cap of $5 million a year in claimed tax credits, indicating that the financial cost of the program will not exceed that amount in a given tax year.

Economic Impact

The total economic impact is assessed based on the output generated by jobs supported through the Cybersecurity and Software Employee Tax Credit. Economic impact modeling assumes that all jobs claimed under the credit are directly attributable to the program and would not have been created or retained but for the presence of the credit.

The total economic activity associated with the employment attributable to the incentive exceeds the cost of the incentive, as measured by the amount claimed, multifold on an annual basis. The economic output per $1 of the credit claimed has ranged from $78 to $101 since the program's inaugural year in 2020, and has been steadily increasing annually. In tax year 2023, the most recent year for which data is available, the 939 claimants of the tax credit were associated with over $217.5 million in economic output. Indirect and induced activity as a product of the directly supported employment resulted in an additional 655 jobs across an array of sectors, highlighting the ripple effect of supported employment throughout the state's economy.

The estimated tax revenues to the State from activity supported by the Cybersecurity and Software Employee Tax Credit exceeded the total amount claimed each year since the program's inception. In tax year 2023, the most recent year for which data is available, every $1.00 claimed under the incentive was associated with $3.29 of tax revenue to the State of Oklahoma. This amount has generally been increasing with credit use. Tax revenues are estimated using the long-term historic ratio of Oklahoma's gross state tax collections, as published by the Oklahoma Tax Commission, to the Gross State Product. Additional detail is provided in the appendix.

On its face, the Cybersecurity and Software Employee Tax Credit provides significant economic and fiscal benefits to the Oklahoma economy well beyond the industry the program targets. From a fiscal perspective, the program generates a strongly positive ROI to the State, with State tax revenue exceeding the credits claimed each year. The following table illustrates both the economic and fiscal benefits of the program based on data for tax years 2020 through 2023.

Table 3: Economic Impacts per Year, FY2020-FY2023

Year	Effect	Output	Value Added	Labor Income	Jobs	Estimated OK Tax Revenue	Total Claimed	Ratio: Output/ Claims	Ratio: Revenue/ Claims
2020	Direct Effect	$4,963,084	$3,599,221	$3,497,344	46				
	Indirect Effect	$885,668	$486,653	$357,669	8				
	Induced Effect	$1,631,470	$979,417	$459,591	8				
	Total Effect	**$7,480,222**	**$5,065,291**	**$4,314,603**	**62**	**$268,592**	**$95,995**	**$77.92**	**$2.80**
2021	Direct Effect	$17,407,094	$12,350,678	$11,732,908	156				
	Indirect Effect	$3,301,077	$1,834,554	$1,355,202	27				
	Induced Effect	$5,511,569	$3,195,581	$1,509,566	27				
	Total Effect	**$26,219,740**	**$17,380,812**	**$14,597,676**	**211**	**$921,634**	**$326,096**	**$80.40**	**$2.83**
2022	Direct Effect	$26,238,213	$16,822,059	$16,561,088	226				
	Indirect Effect	$6,225,220	$3,435,052	$2,547,214	50				
	Induced Effect	$7,966,115	$4,555,673	$2,137,084	41				
	Total Effect	**$40,429,548**	**$24,812,784**	**$21,245,386**	**317**	**$1,315,721**	**$481,420**	**$83.98**	**$2.73**
2023	Direct Effect	$112,174,720	$74,536,215	$71,839,562	939				
	Indirect Effect	$41,875,710	$23,131,894	$16,136,692	304				
	Induced Effect	$63,400,524	$36,467,300	$18,822,674	351				
	Total Effect	**$217,450,954**	**$134,135,409**	**$106,798,928**	**1,594**	**$7,112,656**	**$2,161,712**	**$100.59**	**$3.29**

This return indicates that, assuming all cybersecurity claimants would not have located in Oklahoma or been employment in the cybersecurity industry *but for* the availability of the incentive, the State has a strongly positive return on its investment. However, it is likely that some, if not all, of the employment would have otherwise occurred due to industry demand and momentum, diminishing the return on investment. In order for the State's return on investment to be positive – known as the 'breakeven' point – at least 30.4 percent of the employment would need to be directly attributable to the tax credit program. While it is difficult to ascertain what volume of claimants chose to become cybersecurity employees in Oklahoma due to the credit, it is possible to contextualize the breakeven point within the general industry employment trends within the State.

In order for the 'breakeven' test to be satisfied, 116 of the 380 information security analyst jobs added in Oklahoma between 2020, when the credit was first introduced, and 2024 would have to be jobs that would not have been created 'but for' the availability of the incentive. Excluding these 116 positions from employment growth over the same time period yields a CAGR of 6.7 percent, lower than the employment CAGR from 2014 to

2020. Given the industry demand and market momentum, as well as the overall growth in cybersecurity nationwide over the same time period, it would not make sense for the employment CAGR to have decreases. This indicates that the 'breakeven' point is likely not achieved through the incentive, as much of the growth in employment would have taken place without the availability of the credit. This analysis is summarized in Table 4.

Table 4: Breakeven Analysis of Employment Growth

Year	Number of Employees	'Breakeven' Employees	CAGR	'Breakeven' CAGR	CAGR Period
2014	550				
2020	890		8.35%		2014-2020
2024	1,270	116	9.30%	6.7%	2020-2024

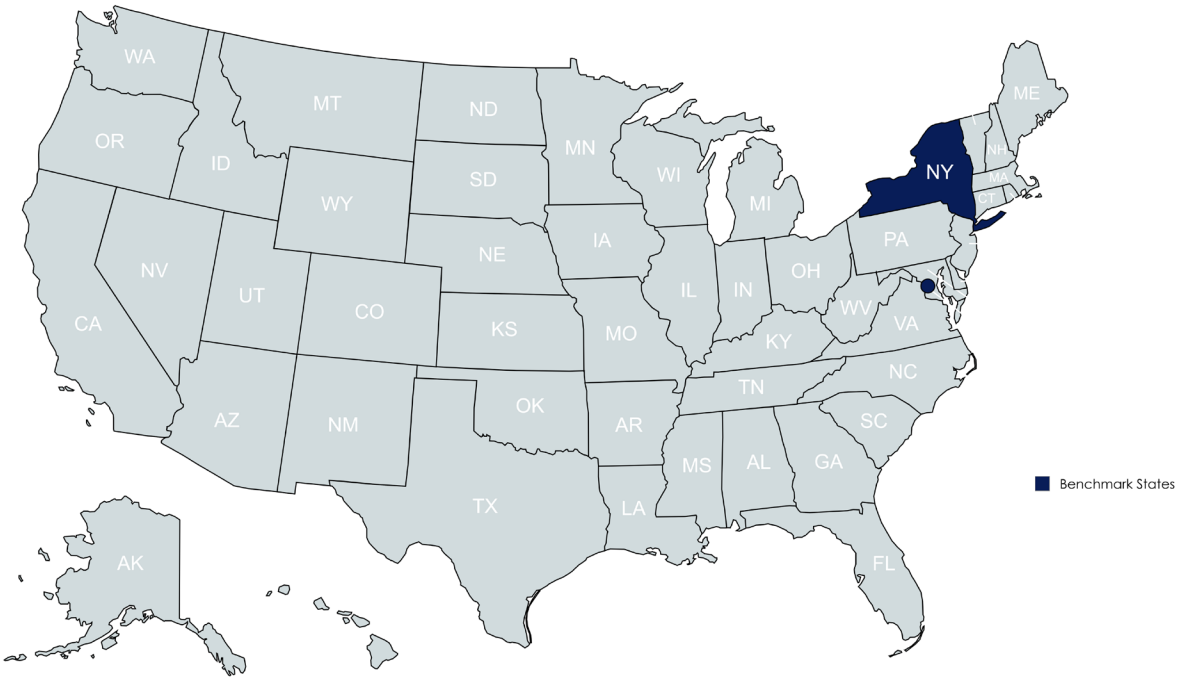
Incentive Benchmarking

Benchmarking Peer State Programs

For evaluation purposes, benchmarking offers insights into how peer states capitalize on and assess similar incentive programs. It is important to recognize that no states are 'perfect peers' – there will be various differences in economic, demographic, and political factors that must be considered in any analysis. Additionally, it is rare for any two state incentive programs to be identical. These benchmarking realities should be kept in mind when drawing comparisons between programs.

The process of forming a comparison group for incentive evaluation typically starts with neighboring states, as proximity often leads states to compete for the same regional businesses or industry investments. The novelty of Oklahoma's Cybersecurity Employee Tax Credit, however, limits the available peer programs, and no states bordering Oklahoma offer tax credit programs for qualified software and cybersecurity employees. States that do have similar programs targeting the software and cybersecurity industry do not necessarily mirror Oklahoma in economic and labor market conditions and are therefore neither perfect peers nor perfect competitors for comparison purposes.

Figure 5: Map of Peer Program States



Both Washington DC and New York State offer tax credit programs, in the form of income or wage tax credits, aimed at hiring and retaining a strong technology workforce. While the market conditions prompting these programs may look different from those in Oklahoma, the three programs all offer a fixed credit amount for qualified employees. The New York and Washington DC programs are summarized in the table below.

Table 5: State Peer Program Details

State	Program	Description
New York	Qualified Emerging Tech Company Employment Tax Credits	Qualified emerging technology companies may receive income tax credits of $1,000 per new employee hired in that tax year, available for three consecutive years.
Washington DC	Qualified High Technology Companies	Eligible technology companies may receive wage tax credits of $3,000 for qualified employees and $15,000 for qualified disadvantaged employees, plus new hire retraining credits, reduced capital gains tax on qualifying investment, and a five-year freeze on real property tax for office improvements.

It is important to note that several states, such as Alabama and Arkansas, offer apprenticeship tax credit programs for qualified industries, many of which include software and technology. As Oklahoma offers a separate tax credit aimed at expanding apprenticeship opportunities, these programs have not been considered for Cybersecurity Employee Tax Credit benchmarking purposes.

While Oklahoma is certainly somewhat unique, especially regionally, in its availability of an incentive targeting cybersecurity growth, many other states have recognized the economic potential of the cybersecurity, using other tools outside of incentives to spur growth. Since fiscal year 2015, Maryland has invested $4.7 million in programs offering seed funding and tax credits to support early-stage cybersecurity firms. Virginia, meanwhile, supports startups through Mach37, a state-backed accelerator that provides mentorship and funding for entrepreneurs. Both initiatives aim to grow the cybersecurity workforce and expand the tax base through sustained job creation, highlighting the alternative approaches states can take.

Maryland and Virginia also have implemented initiatives aimed at not only growing a cybersecurity business base but creating a strong cybersecurity talent pipeline. In 2023, Maryland established the Cyber Maryland Program and Board in order to create a strategic action plan for cybersecurity workforce development, leveraging Maryland's proximity to federal agencies, strong academic institutions, and growing tech section. The strategy focuses on aligning education with industry needs through curriculum reform, foundational cyber literacy skills building, and experiential learning.[17] Virginia's approach to building a talent pipeline, as established through the Commonwealth Cyber Initiative (CCI), focuses on connecting universities industry, and government to create a robust cyber workforce through experiential learning and interdisciplinary education. Key initiatives include student internships, curriculum redevelopment, and K-12 cybersecurity exposure in order to promote interest and participation.[18] By leveraging regional hubs and aligning academic programs with industry needs, both states aim to position themselves strongly for cybersecurity talent development.

[17] Maryland Governor's Workforce Development Board, Maryland's Cybersecurity Talent Strategy. Available at TEDCO Cyber Maryland Strategy_Final.pdf.
[18] Commonwealth Cyber Initiative, Workforce Development. Available at Workforce Development | Commonwealth Cyber Initiative (CCI) | Virginia Tech.

Appendix

Appendix A: Incentive Statute

§68-2357.405. Tax credit for qualifying software or cybersecurity employees.

A. As used in this section:

1. "Degree-producing institution" means any public or private college or university that has accredited programs, as defined in this section, from the Accreditation Board for Engineering and Technology (ABET);

2. "Technology center" means an institution in the Oklahoma State Board of Career and Technology Education that offers accredited programs as defined in this section;

3. "Accredited program" means:

- a.an undergraduate or graduate cybersecurity, information technology, computer science or computer engineering degree program accredited by the Computing Accreditation Commission (CAC) or the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET) offered at a degree-producing institution, or
- b.a software, cybersecurity, programming, software programming, coding, application development, computer science or information technology program requiring more than eight hundred (800) hours of class time;

4. "Qualifying compensation" means average annualized wages paid by a qualifying employer which meet or exceed one hundred ten percent (110%) of the average county wage, as that percentage is determined by the Oklahoma Department of Commerce based on the most recent U.S. Department of Commerce data for the county in which the employer is located; or, for federal employees, such employees shall meet a GS-5 or equivalent initial hiring threshold in lieu of the wage requirement. For the purposes of this definition, annual wages shall not include employer-provided health care or retirement benefits;

5. "Qualified employer" means a sole proprietor, general partnership, limited partnership, limited liability company, corporation or other legally recognized business entity, or governmental entity that has at least fifteen full-time employees;

6. "Qualified industry" means a qualified employer whose activities are defined or classified in the most recent North American Industry Classification System (NAICS) manual under U.S. Sector Nos. 21, 22, 31-33, 48, 51, 52, 54, 55, 62 and 92; and

7. "Qualified software or cybersecurity employee" means any person employed in Oklahoma by a qualifying employer in a qualifying industry on or after November 1, 2019, who:

a. has been awarded a degree in an accredited program from a degree-producing institution, or

b. has been awarded a certificate or credential in an accredited program from a technology center.

B. An employer may apply to the Oklahoma Tax Commission for qualification as a "qualified employer" in the manner prescribed by the Tax Commission.

C. In order for the qualified software or cybersecurity employees to qualify to receive the tax credit, the qualified employer shall be in a qualifying industry and pay employees a qualifying compensation for the county in which the qualified employer has its primary Oklahoma address.

D. 1. For taxable years beginning on or after January 1, 2020, and ending before January 1, 2030, a qualified software or cybersecurity employee shall be allowed a credit against the tax imposed pursuant to Section 2355 of this title, subject to the amount prescribed in paragraph 2 of this subsection; provided, the credit shall not be allowed for any qualifying employee working in the state as of November 1, 2019.

2. The credit may be claimed for a period of time not to exceed seven (7) years and, except as provided in subsection H of this section, shall be as follows:

- a.Two Thousand Two Hundred Dollars ($2,200.00) for a qualified software or cybersecurity employee who has been awarded a bachelor's or higher degree from an accredited program at a degree-producing institution, and
- b.One Thousand Eight Hundred Dollars ($1,800.00) for a qualified software or cybersecurity employee who has been awarded an associate's degree from an accredited program at a degree-producing institution or a credential or certificate from an accredited program at a technology center.

E. The credit authorized by this section shall not be used to reduce the tax liability of the taxpayer to less than zero (0).

F. No taxpayer shall claim both the credit provided pursuant to this section and the credit provided pursuant to Section 2357.304 of this title for the same tax year.

G. The maximum time period that the credit may be claimed by any taxpayer is seven (7) years.

H. For the tax year beginning January 1, 2022, and each tax year thereafter, the total amount of credits authorized by this section used to offset tax shall be adjusted annually to limit the annual amount of credits to Five Million Dollars ($5,000,000.00). The Tax Commission shall annually calculate and publish by the first day of the affected year a percentage by which the credits authorized by this section shall be reduced so the total amount of credits used to offset tax does not exceed Five Million Dollars ($5,000,000.00) per year. The formula to be used for the percentage adjustment shall be Five Million Dollars ($5,000,000.00) divided by the credits claimed in the second preceding year.
I. In the event the total tax credits authorized by this section exceed Five Million Dollars ($5,000,000.00) in any calendar year, the Tax Commission shall permit any excess over Five Million Dollars ($5,000,000.00) but shall factor such excess into the percentage adjustment formula for subsequent years.

Added by Laws 2019, c. 483, § 1, eff. Nov. 1, 2019. Amended by Laws 2020, c. 32, § 1, eff. July 1, 2020.

Appendix B: IMPLAN Economic Impact Methodology

The economic impact methodology utilized to determine the multiplier effects is IMPLAN, a proprietary model; PFM has obtained a license for use of the IMPLAN model for these evaluations.

IMPLAN's Social Accounting Matrices (SAMs) capture the actual dollar amounts of all business transactions taking place in a regional economy as reported each year by businesses and governmental agencies. SAM accounts are a better measure of economic flow than traditional input-output accounts because they include "non-market" transactions. Examples of these transactions would be taxes and unemployment benefits.

Multipliers

SAMs can be constructed to show the effects of a given change on the economy of interest. These are called Multiplier Models. Multiplier Models study the impacts of a user-specified change in the chosen economy for 440 different industries. Because the Multiplier Models are built directly from the region- specific SAMs, they will reflect the region's unique structure and trade situation.

Multiplier Models are the framework for building impact analysis questions. Derived mathematically, these models estimate the magnitude and distribution of economic impacts, and measure three types of effects which are displayed in the final report. These are the direct, indirect, and induced changes within the economy.

- **Direct** effects are determined by the Event as defined by the user (i.e., a $10 million order is a $10 million direct effect).
- The **indirect** effects are determined by the amount of the direct effect spent within the study region on supplies, services, labor, and taxes.
- Finally, the **induced** effect measures the money that is re-spent in the study area as a result of spending from the indirect effect.

Each of these steps recognizes an important leakage from the economic study region spent on purchases outside of the defined area. Eventually, these leakages will stop the cycle.

Appendix B: Economic Impacts by Sector

Sector Description	Employment	Output
Custom computer programming services	940	$112,269,067
Employment services	152	$16,766,371
Other real estate	28	$5,095,426
Investigation and security services	16	$1,031,962
Office administrative services	14	$1,060,403
Accounting, tax preparation, bookkeeping, and payroll services	14	$1,675,299
Full-service restaurants	27	$2,555,735
Management consulting services	9	$1,076,325
Legal services	11	$1,661,004
Warehousing and storage	9	$804,194
Management of companies and enterprises	9	$2,095,784
Business support services	7	$583,858
Facilities support services	5	$925,500

Sector Description	Employment	Output
Couriers and messengers	9	$399,239
Monetary authorities and depository credit intermediation	10	$3,194,688
Other computer related services, including facilities management	4	$634,262
Environmental and other technical consulting services	3	$524,848
Data processing, hosting, and related services	4	$969,755
Insurance agencies, brokerages, and related activities	5	$1,426,555
Services to buildings	4	$399,143
Transit and ground passenger transportation	3	$145,835
Limited-service restaurants	21	$2,325,422
Advertising, public relations, and related services	3	$467,633
Architectural, engineering, and related services	2	$417,108
Commercial and industrial machinery and equipment repair and maintenance	3	$348,905
Commercial Sports Except Racing	4	$150,327
All other food and drinking places	10	$771,911
Other support services	2	$437,655
Insurance carriers, except direct life	4	$1,686,259
Securities and commodity contracts intermediation and brokerage	6	$455,405
Landscape and horticultural services	3	$344,571
Electronic and precision equipment repair and maintenance	2	$247,918
Postal service	2	$255,817
Other local government enterprises	4	$2,071,704
All other miscellaneous professional, scientific, and technical services	1	$271,011
Truck transportation	4	$938,426
Wired telecommunications carriers	2	$931,905
Computer systems design services	1	$176,163
Scientific research and development services	1	$283,034
Personal and household goods repair and maintenance	1	$288,028
Maintenance and repair construction of nonresidential structures	2	$340,543
Nondepository credit intermediation and related activities	2	$633,599
Local government passenger transit	1	$106,419
Automotive repair and maintenance, except car washes	6	$781,098
Scenic and sightseeing transportation and support activities for transportation	1	$126,036
Radio and television broadcasting	1	$295,589
Other financial investment activities	8	$1,388,564
Software publishers	1	$474,297
Promoters of performing arts and sports and agents for public figures	1	$155,657

Sector Description	Employment	Output
Printing	1	$101,979
Air transportation	1	$641,586
Performing arts companies	1	$117,602
Independent artists, writers, and performers	1	$107,864
Waste management and remediation services	1	$336,893
Automotive equipment rental and leasing	1	$456,547
Wholesale - Household appliances and electrical and electronic goods	1	$418,229
Wholesale - Professional and commercial equipment and supplies	2	$407,766
Internet publishing and broadcasting and web search portals	0	$398,773
Travel arrangement and reservation services	1	$195,310
Commercial and industrial machinery and equipment rental and leasing	1	$301,286
Business and professional associations	1	$202,330
Satellite, telecommunications resellers, and all other telecommunications	0	$166,190
Photographic services	0	$74,572
Fitness and recreational sports centers	1	$79,488
Electric power transmission and distribution	1	$1,392,545
Wholesale - Wholesale electronic markets and agents and brokers	1	$53,232
Other amusement and recreation industries	2	$128,438
Motion picture and video industries	1	$168,406
il and gas extraction	1	$1,096,264
Other personal services	3	$240,573
Dry-cleaning and laundry services	2	$71,589
Wireless telecommunications carriers (except satellite)	1	$1,021,503
Retail - Building material and garden equipment and supplies stores	4	$461,288
Wholesale - Other nondurable goods merchant wholesalers	2	$824,751
Newspaper publishers	0	$59,904
Cable and other subscription programming	0	$242,560
Lessors of nonfinancial intangible assets	0	$1,006,561
Wholesale - Machinery, equipment, and supplies	1	$154,887
General and consumer goods rental except video tapes and discs	1	$98,038
Wholesale - Other durable goods merchant wholesalers	1	$380,716
Periodical publishers	0	$68,474
Other federal government enterprises	0	$6,579
Electric power generation - Fossil fuel	0	$659,458
Retail - Motor vehicle and parts dealers	8	$1,501,455
Specialized design services	0	$44,937

Sector Description	Employment	Output
News syndicates, libraries, archives and all other information services	0	$10,567
Wholesale - Petroleum and petroleum products	0	$619,959
Car washes	1	$98,619
Retail - Miscellaneous store retailers	9	$505,328
Maintenance and repair construction of residential structures	2	$270,783
Wholesale - Motor vehicle and motor vehicle parts and supplies	1	$200,685
Other educational services	3	$251,198
Wholesale - Grocery and related product wholesalers	2	$442,252
Sign manufacturing	0	$12,373
Hotels and motels, including casino hotels	0	$14,931
Funds, trusts, and other financial vehicles	4	$545,028
Retail - General merchandise stores	13	$1,087,830
Other state government enterprises	0	$53,349
Retail - Gasoline stores	4	$460,405
Natural gas distribution	0	$294,228
Local government electric utilities	0	$84,003
Machine shops	0	$12,308
Retail - Sporting goods, hobby, musical instrument and book stores	3	$208,158
nimal production, except cattle and poultry and eggs	1	$36,759
Wholesale - Drugs and druggistsâ€™ sundries	0	$377,891
State government electric utilities	0	$59,142
Petroleum refineries	0	$1,167,239
Ready-mix concrete manufacturing	0	$32,121
Retail - Furniture and home furnishings stores	2	$338,431
Rail transportation	0	$92,772
Gypsum product manufacturing	0	$18,299
Electric power generation - Wind	0	$164,143
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	0	$41,545
Retail - Electronics and appliance stores	2	$99,495
Retail - Food and beverage stores	8	$782,169
Paperboard container manufacturing	0	$19,785
Directory, mailing list, and other publishers	0	$9,301
Pipeline transportation	0	$163,157
Support activities for agriculture and forestry	0	$5,704
Other accommodations	0	$36,513
tone mining and quarrying	0	$9,466
Other concrete product manufacturing	0	$7,384
read and bakery product, except frozen, manufacturing	0	$47,972

Sector Description	Employment	Output
Book publishers	0	$15,300
Fabricated structural metal manufacturing	0	$8,287
Other millwork, including flooring	0	$3,914
Paper mills	0	$42,164
Amusement parks and arcades	0	$30,977
Water, sewage and other systems	0	$9,784
Other crop farming	0	$14,257
Junior colleges, colleges, universities, and professional schools	3	$245,338
Valve and fittings, other than plumbing, manufacturing	0	$7,367
Motor vehicle steering, suspension component (except spring), and brake systems manufacturing	0	$10,520
Air conditioning, refrigeration, and warm air heating equipment manufacturing	0	$8,034
Bottled and canned soft drinks and water	0	$155,322
Other fabricated metal manufacturing	0	$4,051
Ornamental and architectural metal work manufacturing	0	$4,146
Poultry processing	0	$39,242
Direct life insurance carriers	1	$270,176
Sound recording industries	0	$12,479
Other ambulatory health care services	1	$159,413
Brick, tile, and other structural clay product manufacturing	0	$4,142
Plate work manufacturing	0	$4,990
Metal window and door manufacturing	0	$3,674
Sand and gravel mining	0	$4,017
Electroplating, anodizing, and coloring metal	0	$1,879
Plastics pipe and pipe fitting manufacturing	0	$10,371
Maintenance and repair construction of highways, streets, bridges, and tunnels	0	$2,832
Tire manufacturing	0	$37,120
Metal coating and nonprecious engraving	0	$3,920
Concrete block and brick manufacturing	0	$4,420
Other plastics product manufacturing	0	$5,140
Paperboard mills	0	$4,346
Wood container and pallet manufacturing	0	$9,547
Other motor vehicle parts manufacturing	0	$6,277
All other petroleum and coal products manufacturing	0	$16,978
Veterinary services	2	$165,324
Unlaminated plastics profile shape manufacturing	0	$3,184
Retail - Health and personal care stores	6	$654,089
All other miscellaneous manufacturing	0	$9,921
Sheet metal work manufacturing	0	$2,520

Sector Description	Employment	Output
Wood kitchen cabinet and countertop manufacturing	0	$1,661
upport activities for oil and gas operations	0	$4,019
Asphalt shingle and coating materials manufacturing	0	$10,547
Racing and Track Operation	0	$5,221
Wood windows and door manufacturing	0	$1,144
Glass product manufacturing made of purchased glass	0	$3,910
Breweries	0	$16,742
Concrete pipe manufacturing	0	$2,877
Commercial logging	0	$766
Electric power generation - Hydroelectric	0	$4,714
Fluid milk manufacturing	0	$53,319
Motor vehicle electrical and electronic equipment manufacturing	0	$3,686
Animal, except poultry, slaughtering	0	$34,758
All other miscellaneous wood product manufacturing	0	$1,803
Cement manufacturing	0	$4,810
Plastics packaging materials and unlaminated film and sheet manufacturing	0	$3,878
Asphalt paving mixture and block manufacturing	0	$7,604
Surgical and medical instrument manufacturing	0	$822
Veneer and plywood manufacturing	0	$1,423
Electric power generation - Solar	0	$3,838
Sawmills	0	$2,560
Retail - Clothing and clothing accessories stores	4	$471,447
Cut stone and stone product manufacturing	0	$6,049
Petroleum lubricating oil and grease manufacturing	0	$8,537
Polystyrene foam product manufacturing	0	$4,215
Lime manufacturing	0	$3,085
Coal mining	0	$4,289
airy cattle and milk production	0	$8,256
Glass container manufacturing	0	$3,789
Turned product and screw, nut, and bolt manufacturing	0	$991
Paint and coating manufacturing	0	$3,864
Iron, steel pipe and tube manufacturing from purchased steel	0	$2,106
Cut and sew apparel manufacturing (except contractors)	0	$575
Spring and wire product manufacturing	0	$1,754
Oil and gas field machinery and equipment manufacturing	0	$1,818
Nitrogenous fertilizer manufacturing	0	$6,830
Polish and other sanitation good manufacturing	0	$1,381
Prefabricated metal buildings and components manufacturing	0	$1,550
oultry and egg production	0	$23,617

Sector Description	Employment	Output
Urethane and other foam product (except polystyrene) manufacturing	0	$2,633
Fabricated pipe and pipe fitting manufacturing	0	$776
Engineered wood member and truss manufacturing	0	$598
Stationery product manufacturing	0	$1,236
Reconstituted wood product manufacturing	0	$1,457
Other miscellaneous chemical product manufacturing	0	$3,088
Other textile product mills	0	$328
Iron and steel mills and ferroalloy manufacturing	0	$4,419
Other nonmetallic mineral mining and quarrying	0	$390
Travel trailer and camper manufacturing	0	$16,485
Electronic connector manufacturing	0	$299
Support activities for printing	0	$83
Measuring, dispensing, and other pumping equipment manufacturing	0	$1,003
Wineries	0	$3,563
Steel wire drawing	0	$2,478
Ice cream and frozen dessert manufacturing	0	$2,798
Industrial process variable instruments manufacturing	0	$199
Industrial gas manufacturing	0	$3,367
Plastics bottle manufacturing	0	$1,222
Cookie and cracker manufacturing	0	$14,027
Custom architectural woodwork and millwork	0	$163
Metal crown, closure, and other metal stamping (except automotive)	0	$545
Frozen cakes and other pastries manufacturing	0	$4,007
Paper bag and coated and treated paper manufacturing	0	$533
Other rubber product manufacturing	0	$923
Grantmaking, giving, and social advocacy organizations	0	$116,998
Metal heat treating	0	$315
Industrial mold manufacturing	0	$196
Laminated plastics plate, sheet (except packaging), and shape manufacturing	0	$362
Manufactured ice	0	$3,470
Other basic inorganic chemical manufacturing	0	$1,646
Motor vehicle transmission and power train parts manufacturing	0	$853
Cut and sew apparel contractors	0	$86
Pottery, ceramics, and plumbing fixture manufacturing	0	$1,266
Electric power generation - Biomass	0	$1,257
Other clay, ceramic, refractory minerals mining	0	$324
eat processed from carcasses	0	$70,087
Ferrous metal foundries	0	$338

Sector Description	Employment	Output
Battery manufacturing	0	$1,536
Electric power generation - All other	0	$55
Construction machinery manufacturing	0	$732
Prefabricated wood building manufacturing	0	$461
Gasket, packing, and sealing device manufacturing	0	$747
Miscellaneous nonmetallic mineral products manufacturing	0	$505
Other animal food manufacturing	0	$18,863
Other basic organic chemical manufacturing	0	$3,192
Industrial and commercial fan and blower and air purification equipment manufacturing	0	$144
Bare printed circuit board manufacturing	0	$92
Tortilla manufacturing	0	$5,949
Abrasive product manufacturing	0	$189
Other pressed and blown glass and glassware manufacturing	0	$308
Office supplies (except paper) manufacturing	0	$170
Wood preservation	0	$749
Water transportation	0	$2,402
Apparel accessories and other apparel manufacturing	0	$386
Sanitary paper product manufacturing	0	$3,477
Motor vehicle gasoline engine and engine parts manufacturing	0	$518
Semiconductor and related device manufacturing	0	$232
Plastics material and resin manufacturing	0	$1,231
Gambling industries (except casino hotels)	0	$83,389
Manufacturing and reproducing magnetic and optical media	0	$213
Museums, historical sites, zoos, and parks	0	$30,258
Doll, toy, and game manufacturing	0	$143
Other snack food manufacturing	0	$2,459
Toasted nuts and peanut butter manufacturing	0	$2,538
Canned specialties	0	$3,190
Printed circuit assembly (electronic assembly) manufacturing	0	$67
Mineral wool manufacturing	0	$315
Flat glass manufacturing	0	$545
Broom, brush, and mop manufacturing	0	$251
All other converted paper product manufacturing	0	$222
Other communications equipment manufacturing	0	$73
Soap and other detergent manufacturing	0	$429
Flour milling	0	$14,115
All other food manufacturing	0	$3,427
Jewelry and silverware manufacturing	0	$2,528
Aircraft manufacturing	0	$239
Major household appliance manufacturing	0	$1,255

Sector Description	Employment	Output
Rolled steel shape manufacturing	0	$382
Power boiler and heat exchanger manufacturing	0	$126
Ground or treated mineral and earth manufacturing	0	$149
Handtool manufacturing	0	$197
Pesticide and other agricultural chemical manufacturing	0	$3,093
Motor vehicle seating and interior trim manufacturing	0	$147
Hardware manufacturing	0	$230
Wiring device manufacturing	0	$130
Other aircraft parts and auxiliary equipment manufacturing	0	$46
Iron and steel forging	0	$105
All other industrial machinery manufacturing	0	$44
Cut stock, resawing lumber, and planing	0	$92
Soybean and other oilseed processing	0	$5,154
Ball and roller bearing manufacturing	0	$58
Nonferrous forging	0	$72
Fertilizer mixing	0	$146
Cutting tool and machine tool accessory manufacturing	0	$69
Showcase, partition, shelving, and locker manufacturing	0	$43
Musical instrument manufacturing	0	$362
Forestry, forest products, and timber tract production	0	$205
Adhesive manufacturing	0	$190
All other transportation equipment manufacturing	0	$1,587
Motor and generator manufacturing	0	$70
Motor vehicle body manufacturing	0	$105
Telephone apparatus manufacturing	0	$72
Heating equipment (except warm air furnaces) manufacturing	0	$278
Manufactured home (mobile home) manufacturing	0	$60
Distilleries	0	$464
Medical and diagnostic laboratories	1	$217,207
Fiber optic cable manufacturing	0	$63
Metal mining services	0	$53
Metal tank (heavy gauge) manufacturing	0	$57
Commercial and service industry machinery manufacturing	0	$78
Coffee and tea manufacturing	0	$1,140
Printing ink manufacturing	0	$32
Machine tool manufacturing	0	$65
Fasteners, buttons, needles, and pins manufacturing	0	$527
Fluid power pump and motor manufacturing	0	$50
Dry, condensed, and evaporated dairy product manufacturing	0	$1,526
Automatic environmental control manufacturing	0	$25

Sector Description	Employment	Output
Speed changer, industrial high-speed drive, and gear manufacturing	0	$22
Overhead cranes, hoists, and monorail systems manufacturing	0	$87
Nonferrous metal foundries	0	$26
Motor vehicle metal stamping	0	$59
Truck trailer manufacturing	0	$66
Custom compounding of purchased resins	0	$86
Scales, balances, and miscellaneous general purpose machinery manufacturing	0	$30
Nonupholstered wood household furniture manufacturing	0	$204
ats and oils refining and blending	0	$1,036
Metal cans manufacturing	0	$1,246
Other electronic component manufacturing	0	$27
Farm machinery and equipment manufacturing	0	$74
Rendering and meat byproduct processing	0	$509
Industrial truck, trailer, and stacker manufacturing	0	$32
Other leather and allied product manufacturing	0	$70
Industrial process furnace and oven manufacturing	0	$36
Military armored vehicle, tank, and tank component manufacturing	0	$46
Lighting fixture manufacturing	0	$22
Lawn and garden equipment manufacturing	0	$74
Other engine equipment manufacturing	0	$58
Wood office furniture manufacturing	0	$19
Synthetic dye and pigment manufacturing	0	$42
Labor and civic organizations	1	$113,086
Pulp mills	0	$26
Textile bag and canvas mills	0	$151
Frozen specialties manufacturing	0	$440
Dry pasta, mixes, and dough manufacturing	0	$948
Mayonnaise, dressing, and sauce manufacturing	0	$218
Computer storage device manufacturing	0	$82
Custom roll forming	0	$20
Canned fruits and vegetables manufacturing	0	$223
Air and gas compressor manufacturing	0	$21
All other miscellaneous electrical equipment and component manufacturing	0	$11
Secondary processing of other nonferrous metals	0	$29
Pharmaceutical preparation manufacturing	0	$3,970
Broadcast and wireless communications equipment manufacturing	0	$10
Nonchocolate confectionery manufacturing	0	$377
Bowling centers	0	$7,552

Sector Description	Employment	Output
Heavy duty truck manufacturing	0	$261
Aluminum sheet, plate, and foil manufacturing	0	$42
Totalizing fluid meter and counting device manufacturing	0	$17
Copper rolling, drawing, extruding and alloying	0	$44
Special tool, die, jig, and fixture manufacturing	0	$5
Drilling oil and gas wells	0	$8
Leather and hide tanning and finishing	0	$58
Boat building	0	$9,051
Rope, cordage, twine, tire cord and tire fabric mills	0	$61
Switchgear and switchboard apparatus manufacturing	0	$5
Toilet preparation manufacturing	0	$401
Small arms, ordnance, and accessories manufacturing	0	$21
Nonwoven fabric mills	0	$44
Relay and industrial control manufacturing	0	$9
Surgical appliance and supplies manufacturing	0	$326
Textile and fabric finishing mills	0	$28
Welding and soldering equipment manufacturing	0	$5
Power-driven handtool manufacturing	0	$100
Office furniture, except wood, manufacturing	0	$4
Institutional furniture manufacturing	0	$6
Metal barrels, drums and pails manufacturing	0	$40
Chocolate and confectionery manufacturing from cacao beans	0	$200
Other aluminum rolling, drawing and extruding	0	$16
Carpet and rug mills	0	$189
Small arms ammunition manufacturing	0	$27
Computer terminals and other computer peripheral equipment manufacturing	0	$3
Audio and video equipment manufacturing	0	$149
Commercial hunting and trapping	0	$2,056
Curtain and linen mills	0	$103
Dog and cat food manufacturing	0	$13,457
Synthetic rubber manufacturing	0	$20
Secondary smelting and alloying of aluminum	0	$18
Motor home manufacturing	0	$32,864
Fluid power cylinder and actuator manufacturing	0	$3
Other nonmetallic minerals services	0	$5
Mechanical power transmission equipment manufacturing	0	$3
Medicinal and botanical manufacturing	0	$36
Railroad rolling stock manufacturing	0	$5
Electric lamp bulb and part manufacturing	0	$9
Video tape and disc rental	0	$2,339

Sector Description	Employment	Output
Electronic computer manufacturing	0	$14
Rolling mill and other metalworking machinery manufacturing	0	$21
Flavoring syrup and concentrate manufacturing	0	$55
Motorcycle, bicycle, and parts manufacturing	0	$39
Upholstered household furniture manufacturing	0	$203
Spice and extract manufacturing	0	$26
Aircraft engine and engine parts manufacturing	0	$2
Fabric coating mills	0	$6
Mattress manufacturing	0	$1,387
Search, detection, and navigation instruments manufacturing	0	$3
Ammunition, except for small arms, manufacturing	0	$3
Analytical laboratory instrument manufacturing	0	$3
Narrow fabric mills and schiffli machine embroidery	0	$4
Sporting and athletic goods manufacturing	0	$42
Small electrical appliance manufacturing	0	$79
Turbine and turbine generator set units manufacturing	0	$2
Food product machinery manufacturing	0	$5
Electricity and signal testing instruments manufacturing	0	$1
Blind and shade manufacturing	0	$65
Watch, clock, and other measuring and controlling device manufacturing	0	$16
Packaging machinery manufacturing	0	$1
Elevator and moving stairway manufacturing	0	$1
Biological product (except diagnostic) manufacturing	0	$24
Offices of dentists	4	$621,931
Automobile and light duty motor vehicle manufacturing	0	$1,413
In-vitro diagnostic substance manufacturing	0	$231
Ophthalmic goods manufacturing	0	$23
Electromedical and electrotherapeutic apparatus manufacturing	0	$15
Other household nonupholstered furniture manufacturing	0	$200
Dental equipment and supplies manufacturing	0	$1
Tobacco manufacturing	0	$76,786
Burial casket manufacturing	0	$848
Dental laboratories	0	$346
Hospitals	21	$4,500,881
Offices of physicians	11	$1,875,479
Individual and family services	7	$373,293
Nursing and community care facilities	7	$685,930
Personal care services	5	$200,016
Outpatient care centers	4	$661,023

Sector Description	Employment	Output
Offices of other health practitioners	4	$455,233
Child day care services	4	$265,373
Private households	3	$61,285
Tenant-occupied housing	3	$1,025,059
Home health care services	3	$198,946
Elementary and secondary schools	3	$137,782
Religious organizations	2	$140,109
Residential mental health, substance abuse, and other residential care facilities	2	$131,432
Community food, housing, and other relief services, including rehabilitation services	1	$135,559
Death care services	1	$57,527
Total	**1,594**	**$210,043,534**

Appendix C: Fiscal Impact Methodology

While the IMPLAN tax report captures all tax revenue in the study area across all levels of government that exist in the area, it has limitations related to industry-specific profiles, therefore this evaluation has used historic long-range data on Gross State Product, as published by the Bureau of Economic Analysis, and total state tax revenue, as published by the Oklahoma Tax Commission. These ratios can be found in the following table.

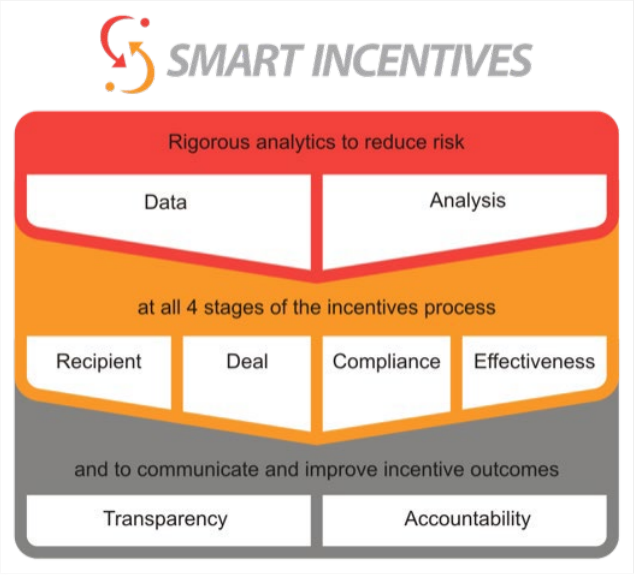
State of Oklahoma Tax Collection/Gross State Product

Year	Oklahoma GSP	Oklahoma Tax Revenue	Ratio
2005-06	$137,602,100,000	$8,435,214,025	6.1%
2006-07	$144,862,600,000	$8,685,842,682	6.0%
2007-08	$165,364,200,000	$9,008,981,280	5.4%
2008-09	$145,546,500,000	$8,783,165,581	6.0%
2009-10	$154,421,600,000	$7,774,910,000	5.0%
2010-11	$166,386,300,000	$8,367,871,162	5.0%
2011-12	$174,894,400,000	$8,998,362,975	5.1%
2012-13	$181,922,200,000	$9,175,334,979	5.0%
2013-14	$196,303,200,000	$9,550,183,790	4.9%
2014-15	$186,865,600,000	$9,778,654,182	5.2%
2015-16	$181,808,800,000	$8,963,894,053	4.9%
2016-17	$191,762,700,000	$8,789,362,844	4.6%
2017-18	$203,258,300,000	$9,837,247,035	4.8%
2018-19	$205,672,300,000	$11,091,161,884	5.4%
2019-20	$179,094,200,000	$10,494,867,628	5.9%
2020-21	$214,724,900,000	$11,605,521,952	5.4%
2021-22	$247,149,600,000	$13,401,926,174	5.4%
2022-23	$253,872,900,000	$14,176,086,119	5.6%
2023-24	$264,596,300,000	$12,627,649,733	4.8%
Average	**$189,268,878,947**	**$9,976,117,794**	**5.3%**

Appendix D: Incentive Best Practices

There has been extensive writing around what constitute business incentives best practices. From the project team's review of many sources,[19] it has identified 10 important best practices and sought to incorporate them into the analysis and discussion of this incentive.

As a starting point, business incentives should be viewed as a process, not an event. The award of an incentive and the incentive features are part of that process, and many of the identified best practices reflect that. The process itself should take into consideration each of these factors, which PFM's subcontractor, Smart Incentives, demonstrates in the following illustration:



While the project team believes this is a strong set of best practices, there may well be others that are as (or more applicable) in specific situations. It is also likely that some of the best practices will come into conflict in some situations. For example, application and reporting requirements may reduce the simplicity of business compliance. As a result, these will always be subject to analysis on a case-by-case basis.

The 10 best practices are:

1. **For maximum impact, incentives should be targeted.** Examples of useful targeting include companies or industries that export their goods or services out-of-state; high economic impact companies or industries – such as those with higher wages and benefits, significant job creation, or significant capital investment.

2. **Incentives should be discretionary.** In most instances, an application process enables the state government to require company disclosure of information related to

[19] Three resources in particular were relied upon putting together the list of best practices. They are "What Factors Influence the Effectiveness of Business Incentives?" The Pew Charitable Trusts, April 4, 2019, accessed electronically at https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2019/04/what-factors-influence-the-effectiveness- of-business-incentives; "Improving Economic Development Incentives," Timothy J. Bartik, W.E. Upjohn Institute for Employment Research, 2018, accessed electronically at https://research.upjohn.org/cgi/viewcontent.cgi?article=1000&context=up_policybriefs; "Best Practices for the Design and Evaluation of State Tax Incentives Programs for Economic Development," Matthew N. Murray and Donald J. Bruce, January 2017, included within another evaluation at https://media.al.com/news_mobile_impact/other/AL%20ENTERTAIN%20NEWMKTS%203%209%2017.pdf Software and Cybersecurity Employee Tax Credit Draft Evaluation

eligibility criteria and enables the state to reject applications that do not meet its standards.

3. **Incentives should leverage significant private capital.** Ideally, the incentive should leverage private investment that is at least several multiples of the state investment.

4. **Incentives should provide most of the benefit within 1-3 years and have a limited duration.** Company discount rates are much higher than for the state, and businesses will significantly devalue incentive payments in later years.

5. **Incentives should take into consideration state and/or local as well as industry economic conditions.** Incentives that are provided in high performing areas or for stable and profitable businesses or industries will likely fail the 'but for test' – meaning the activity would likely occur without the state incentive.

6. **'Smart' incentives help businesses overcome practical barriers to growth.** In particular, customized assistance for locally owned, small and medium-sized businesses can have significant impact.

7. **Incentives should be transparent.** The incentive purpose should be clearly articulated, as are eligibility requirements, and regular, detailed reporting should be required from all program recipients.

8. **Incentives should require accountability.** When upfront financial incentives are offered in return for job creation, retention, or capital investment, there should be contract language in place that allows the state to 'claw back' state resources should the company not meet performance requirements.

9. **Incentives should have caps.** To ensure the state's financial health, program dollar caps or limits should be in place. Incentive programs should also have a limited duration, with sunsets in place to require regular review of incentive performance.

10. **Incentives should be simple and understandable.** The state should be able to easily and effectively administer the incentive, and users should be able to readily comply with its requirements.