State of Oklahoma
Incentive Evaluation Commission
Seed Capital Fund Evaluation

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Key Findings and Recommendations

Overview

The Oklahoma Seed Capital Fund (OSCF) makes early-stage equity investments to Oklahoma businesses in industries with technologies and proprietary products, processes, or knowledge that provide high growth opportunities. OSCF invests in high-growth small businesses based in Oklahoma with a goal of using the state's investment to attract additional private investment.[1] OSCF investments range from $0.2 million to $1.5 million. In most cases, the investment is made with 100 percent matching investments from private sources. Qualifying firms must have at least 50 percent of its employees and/or assets in Oklahoma. The OSCF is funded through the Oklahoma Center for the Advancement of Science and Technology (OCAST) and managed by i2e, a not-for-profit corporation that specializes in investing in innovative Oklahoma-based small businesses.

Recommendation: Retain the program, with modifications.

While there is an increasing venture capital presence in Oklahoma, the OSCF has been successful in its investing approach and provides high-quality due diligence and other services to firms where they make an investment.

Key Findings

- **From 2008 to Q3 2022, OSCF has closed 83 investments totaling $31 million in 44 companies.** Under the program guidelines, companies receiving funding have made repayments totaling more than $9 million to the fund.
- **From 2008 to Q2 2022, total capital investment in Oklahoma by companies receiving OSCF funding has reached $272 million.** The capital investment amount is approximately 8.8 times the initial investments made over that same period.
- **Since establishing the first fund Series in 2007, the OSCF has leveraged more than $700 million of private capital in total**. This represents an approximate 23:1 leverage ratio.
- **From 2008 to 2021, for economic impact that can be measured, the OSCF has an internal ROI that is negative.** However, this does not include impacts from additional capital invested in Oklahoma as a result of these early, strategic investments in seed stage companies. The fund is also revolving, so that repayments and investment returns are able to be recycled in the future.
- **The most common OSCF investment recipients are companies operating in the biopharmaceutical or computer software industries.** These industries account for 68 percent of the total number of investments and 70 percent of the total dollar amount of investments made.
- **Oklahoma ranks low among nearby states and the nation in terms of venture capital funding disbursed.** According to data from the National Venture Capital Association, Oklahoma ranks 46th among all states in number of companies receiving investment, venture capital deals, and total dollars invested. After making up ground compared to nearby states in the last evaluation, Oklahoma has continued to grow, but not as quickly as states such as Kansas and Arkansas.
- **Data collection and reporting improvements are needed.** Data reported by i2e is collected via an annual survey of all participating firms. The response rate of firms varies from year to year, so there can be no time-series trend drawn from the data. There is also no information collected that identifies the sector where each job is created or at what stage in the investment's lifecycle it was created. Other key data for measuring the impact the investment made on each company would be reports of growth in sales and measures of profitability. This cannot be ascertained from aggregate level data collected from the annual survey and reported annually by i2e.

[1] Small business, defined by the United States Small Business Administration

Recommendations

- **Current focus in software and biotech firms could be shifted over time to align with other statewide programs and incentives**.

- **Given the maturation of the venture capital industry in Oklahoma, it could be valuable to reexamine OSCF's role and mission in the market.** Implementation of the new pre-seed capital program in FY23 solves a major challenge for firms accessing the Technology Business Finance Program (TBFP0. Additional research – in the form of surveys, in-depth interviews, and/or focus groups – should be conducted to identify remaining gaps for entrepreneurs that can be supported through the OSCF and its associated programs.

- **Improve data collection and reporting.** Annual data collection and reporting should be modified to collect data that better ties business performance to the initial investment made by the fund. This would improve future evaluations and more accurately describe the benefits of the program. An annual survey is distributed by i2e that collects employment, wages, and revenue levels of companies that have received fund investments. However, there is no indication of net growth in these categories, or when the initial investment was made relative to this growth. The annual survey should collect growth in employment, wages, revenue and measures of profitability. This data should be reported in a way that is clear regarding the timing of this growth relative to the initial investment.

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 the 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.

2018 Evaluation: Key Findings and Recommendations

Evaluation Category	Significant Finding(s)
Overall Findings	While the Seed Capital Fund invests significant funding into firms in Oklahoma, not enough data exists to capture its specific impacts on sectors, job, growth, etc.
Fiscal and Economic Impact	The program was found to have a positive economic impact.
Future Fiscal Impact Protections	Given the growth in this area, future fiscal growth is a reasonable assumption.
Administrative Effectiveness	The project team noted several areas of strength in the administration of the program.
Achievement of Goals	More data is needed to determine whether it specifically achieves goals related to job growth and sector growth.
Retain, Reconfigure or Repeal	Retain
Other Recommendations	Continue to enhance data collection efforts.

2022 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.

To assist in a determination of program effectiveness, the Incentive Evaluation Commission has adopted the following criteria:

1. Program use
2. Amount of capital investment
3. Comparison of capital investment in general to capital investment in eligible projects
4. Oklahoma jobs created by firms receiving incentive
5. Financial performance of the fund
6. Interaction or coordination with other programs or service offerings in the economic development or entrepreneurial support ecosystem
7. Case studies or other longitudinal tracking of program recipient growth outcomes
8. State return on investment

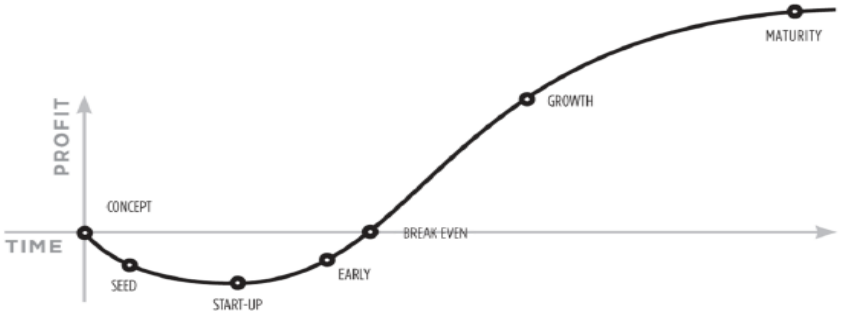
Industry Background

Industry and Incentive Background

Venture capital funding provides start-up companies with needed capital funding to support the development of products and services at an early stage in the business lifecycle. More than three quarters of venture capital investments are made in California, New York, and Massachusetts, leaving other states struggling to compete and develop or keep start-up companies within their borders.[2] Oklahoma is one of many states across the country that has developed programs to support in-state venture capital. In recent years, Oklahoma has attracted significant new Venture Capital firms and funding, including the launch of Cortado Ventures (2020), Atento Capital (2020), and Boyd Street Ventures (2021). These traditional, private firms serve as complementary pieces of the larger start-up ecosystem in the State.

Oklahoma's Seed Capital Fund (OSCF) focuses on investing in seed-stage companies based in Oklahoma. The fund is supplied with capital through appropriations to the Oklahoma Center for the Advancement of Science and Technology (OCAST) and is managed by i2e, a private not-for-profit corporation that specializes in investing in innovative Oklahoma-based small businesses. Like most venture capital funds, OSCF makes long-term investments in startups and receive returns when a startup is acquired or goes public, often referred to as an "exit." Inflows of capital are typically needed at several stages of a startup lifecycle, and venture capital funds often focus on a specific lifecycle stage.

Figure 1: Startup Lifecycle



Source: OCAST

Creating and capitalizing venture capital funds are a common government method to support entrepreneurship. Although generating a sustainable rate of return is part of each venture capital fund's goal, well-managed public venture capital funds have an additional focus on creating a healthy ecosystem for entrepreneurship. Most private venture capital funding emanates in California, New York, and Massachusetts, and firms based in these states invest in startups across the country. For example, California-based funds invested in 49 other states in 2021.[3] As a result, many public venture capital funds are founded in an attempt to retain high-growth start-ups and promising entrepreneurs within their state borders.

The Kauffman Foundation has tracked indicators of entrepreneurship since 1996, measuring the rate of new entrepreneurs, startup early survival, startup early job creation, and the opportunity share of new entrepreneurs.

- **Startup Early Survival** is the percentage of new employer establishments that are still active after one year of operation;
- **Rate of New Entrepreneurs** is the annual average percent of adults becoming entrepreneurs in a given month;

[2] National Science Foundation and Bureau of Economic Analysis data
[3] National Venture Capital Association 2022 Yearbook. Accessed electronically at https://nvca.org/wp-content/uploads/2022/03/NVCA-2022-Yearbook-Final.pdf

- **Opportunity Share of New Entrepreneurs** is the percent of entrepreneurs driven by opportunity, rather than necessity;
- **Startup Early Job Creation** is the jobs created by startups per 1,000 people.

From 2008 to 2021, Oklahoma ranked among the top half of states overall (including nearby states) in each of these indicators. These results suggest Oklahoma has relatively strong entrepreneurial activity.

Table 1: Kauffman Foundation Indicators of Entrepreneurship, 2008-2021 Averages[4]

State	Startup Early Survival	Rate of New Entrepreneurs	Opportunity Share of New Entrepreneurs	Startup Early Job Creation
Arkansas	77.24%	0.33%	82.25%	4.34
Kansas	77.40%	0.27%	85.97%	4.42
Louisiana	78.49%	0.33%	79.76%	4.95
Missouri	78.35%	0.28%	80.18%	4.80
New Mexico	76.90%	0.42%	77.81%	4.24
Oklahoma	**79.47%**	**0.36%**	**83.89%**	**5.33**
Texas	79.59%	0.37%	80.25%	5.44
Oklahoma Rank	**2 of 7**	**3 of 7**	**2 of 7**	**2 of 7**

Source: Kauffman Foundation

Despite these indicators, venture capital funding in the State is still relatively low. According to data from the National Venture Capital Association (NVCA), Oklahoma ranked 46th out of the 50 states in terms of number of companies receiving investment and number of deals closed, and 44th in terms of the total capital invested in 2021.[5] This disparity may be explained by the type of entrepreneurial activity taking place in Oklahoma. It is possible that a significant amount of the new entrepreneurs in Oklahoma are starting businesses outside of the typical high technology target industries for venture capital.

Table 2: Venture Capital Disbursed per $1 million of GDP[6]

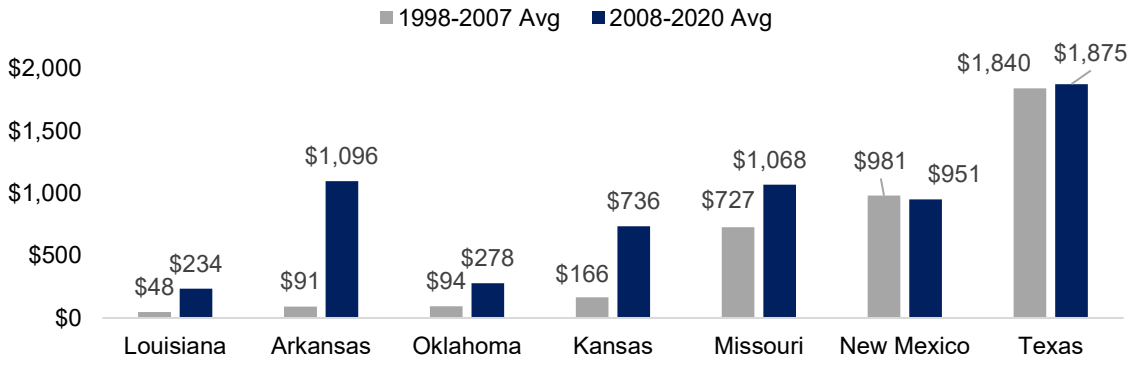
State	2008 to 2020 Average
Oklahoma	**$278**
Texas	$1,875
Arkansas	$1,096
Missouri	$1,068
New Mexico	$951
Kansas	$736
Louisiana	$234
Oklahoma Rank	**6 of 7**

Source: National Science Foundation

The disparity between entrepreneurial activity and venture capital funding may also suggest that Oklahoma is at risk of losing startups to outside venture capital investment as the supply of venture capital in the State may fall short of demand. However, Oklahoma has shown a strong growth rate in this area. Nearby states such as Arkansas, Kansas, and Missouri have still outpaced the growth shown by Oklahoma, but some of this is attributable to one-time spikes in activity. For example, in 2018 Arkansas saw approximately $8,300 of investment per $1 million of State GDP, which is more than double the total from the prior 12 years.

[4] Kauffman Foundation Indicators of Entrepreneurship, 2021. Accessed electronically at https://indicators.kauffman.org/data-table
[5] National Venture Capital Association 2022 Yearbook. Accessed electronically at https://nvca.org/wp-content/uploads/2022/03/NVCA-2022-Yearbook-Final.pdf
[6] National Science Foundation, Science & Engineering Indicators 2020. Accessed electronically at https://nsf.gov/statistics/state-indicators/indicator/venture-capital-per-1-million-state-gdp/table

Figure 2: Dollars of Venture Capital Disbursed per $1 million of State GDP



Source: National Science Foundation

Incentive Usage and Administration

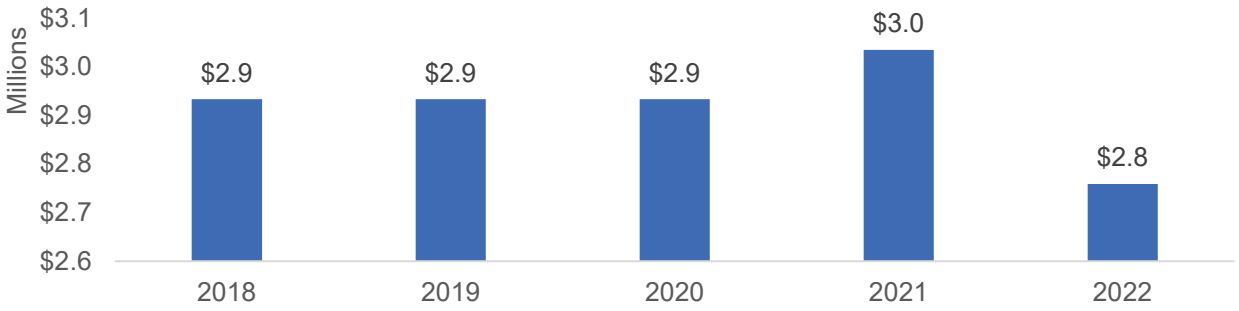
Incentive Characteristics

The Oklahoma Seed Capital Fund (OSCF) provides concept, seed and start-up equity investments to Oklahoma businesses in industries with technologies and proprietary products, processes, or knowledge that provide high growth opportunities. OSCF invests in high-growth small businesses based in Oklahoma with a goal of using the state's investment to attract additional private investment.[7] Investments made by OSCF range from $0.2 million to $1.5 million. In most cases, the investment is made with 100 percent matching from private sources. Qualifying firms must have at least 50 percent of its employees and/or assets in Oklahoma. The OSCF is funded through the Oklahoma Center for the Advancement of Science and Technology (OCAST) and managed by i2e, a private not-for-profit corporation that specializes in investing in innovative Oklahoma-based small businesses.

Program Usage & Funding

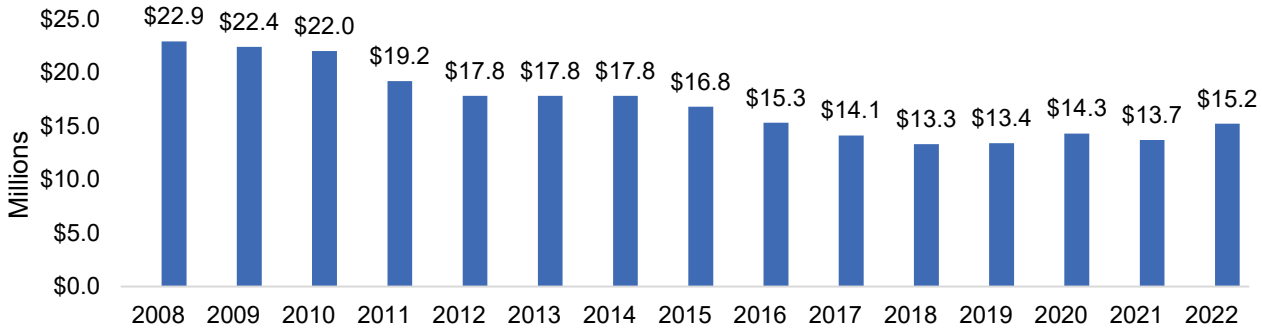
The OSCF operates using state appropriations provided through OCAST. Appropriations have held mostly steady between FY2018 to FY2022 at roughly $3 million per year. Overall, OCAST appropriations have trended down since the FY2008 high of $22.9 million, though there has been an increase in FY2022.

Figure 1: Seed Capital Fund Appropriations, FY 2018 to FY 2022



Source: OCAST

Figure 2: OCAST Appropriations, FY 2008 to FY 2022



Source: OCAST

From CY2017 through July 2022, the most common recipients of OSCF commitments were companies operating in the biopharmaceutical or computer software industries. This aligns with prior evaluations in terms of proportional representation. These industries combined to receive over $7.2 million in seed funding. Of the twenty-four firms that received investments in that time, nineteen remain in business in Oklahoma, one was acquired by a firm in Colorado, and four have gone out of business.

[7] Small business, defined by the United States Small Business Administration

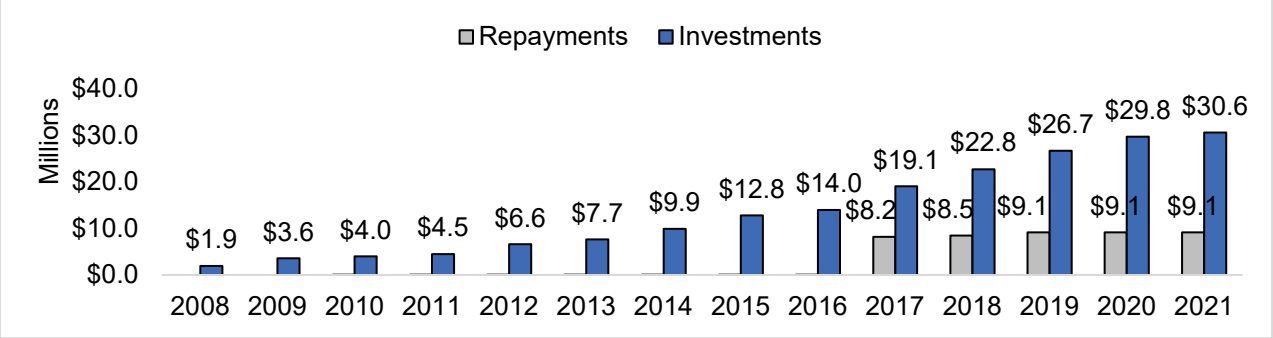
Table 1: Total Seed Capital Fund Investments by Industry, CY2017 to CY2022

Industry	Number of Firms	Total Seed Fund Investment
Biotech/Pharma	6	$2,119,986
Software/IT	6	$5,112,500
Healthcare Services, Systems & Devices	4	$2,800,000
Energy/Environment	4	$3,906,373
Manufacturing	2	$1,675,000
Other-Advanced Materials	1	$1,550,000
Other-Transportation	1	$1,250,000
Total	24	$18,413,859

Source: i2e

The Oklahoma Seed Capital Revolving Fund is permitted to receive loan repayments and investment proceeds in addition to appropriation transfers. All investment proceeds generated by OSCF investments are reinvested in the revolving fund. The Evaluators did not receive updated repayment data beyond 2018.

Figure 3: Cumulative Investments and Repayments, FY 2008 to FY 2021



Source: I2e and OCAST

Table 1: Leverage Summary, by Series, as of March 31, 2022

Series	Funded Commitments	Deal Level Co-Investment	Total Private Capital Leveraged	Leverage Ratio	Grant Funding
Series 2007-1	$5,333,636.00	$34,518,995.00	$554,193,328.00	104:1	$17,494,691.00
Series 2008-2	$17,082,177.00	$33,035,055.00	$57,099,895.00	3:1	$11,241,918.00
Series 2018-3	$8,624,986.00	$66,488,264.00	$89,106,780.00	10:1	$1,358,005.00
Totals	$31,040,799.00	$134,042,314.00	$700,400,002.00	23:1	$30,094,614.00

While investing in seed-stage companies is a high-risk venture, a few successful investments – and in some cases just one – can return many times the original capital and make for a successful fund. For example, while many firms do not succeed at all, Selexys Pharmaceuticals, which was acquired by Novartis, and WeGoLook, acquired by Crawford & Co., and Alkami (valued at $3 billion at the time of IPO)[8] are examples of high return

[8] "Alkami proves unicorns are not a myth." i2E, Accessed digitally at: https://i2e.org/alkami-technology-proves-that-financial-unicorns-are-not-a-myth/

exits for OSCF. The Oklahoma Seed Capital Fund has closed two Series, and opened a third 15-year Series in 2018 (known as OSCF Series 2018-3) that includes all unencumbered funds from the first two Series.

Incentive Administration

Applicants are commonly sourced from i2e's pool of clients participating in its other venture advisory and entrepreneurial development services, and through its relationships with the Department of Commerce and the Oklahoma Manufacturing Alliance. This includes the e3 and the TBFP among others. If requirements are met during the initial assessment and application phase, a term sheet is prepared determining valuation, structure, the amount of investment and other terms. The terms of each investment vary significantly as each is customized to meet the needs of the prospective company. Once a term sheet is agreed upon, it is sent to OCAST for final approval. Before an investment is made, i2e performs thorough research into the viability of the investment including a review of intellectual property, current financials, background check, market assessment, customer validation and the creation of short-term and long-term financial projections.

According to statute, an investment may be approved by OCAST if its board of directors determines the following, based on the company's application and i2e's analysis. The following are the requirements:

- The proceeds of the investment or financial assistance will be used only to cover the seed-capital needs of the enterprise;
- The enterprise has a reasonable chance of success' and there is a reasonable possibility that the Center will recoup at least its initial investment;
- The Center's participation is instrumental to the success of the enterprise and will assist in its retention within the state;
- The Center's investment is leveraged by at least one additional equity or near-equity investor;
- The enterprise has a reasonable potential to enhance employment opportunities within the state;
- The entrepreneur and other founders of the enterprise have already made or are contractually committed to make an appropriate financial and time commitment to the enterprise;
- Binding commitments have been made to the Center by the enterprise for adequate reporting of financial data to the Center, which shall include a requirement for an annual report, or if required by the board, an annual audit of the financial and operational records of the enterprise, and for such control on the part of the Center as the board of directors shall consider prudent over the management of the enterprise, so as to protect the investment or financial commitment of the Center, including in the discretion of the board and without limitation, right of access to financial and other records of the enterprise, and membership or representation on the board of directors of the enterprise.

Throughout the duration of the investment, i2e regularly reviews company financial statements to ensure a company is meeting its goals. In addition to reviewing financials, i2e also makes on-site visits when appropriate to monitor product development.

Several measures of performance are tracked by i2e, including number of new employees, amount of new payroll, average wage, portfolio diversity, revenues and paybacks, and private dollars leveraged. These data are collected through an annual, optional survey process for program participants. The survey is sent to all firms each year, though not all firms respond, and data is only available in aggregate to protect privacy of the participants. It prevents an evaluator from conducting a true longitudinal assessment of companies that have received funding, and reinforces the aforementioned ability for one or two successful firms to dramatically shift results. While noting these limitations, the survey process is still a fair indicator of participant activity in a given year.

Table 2: Reported Employment, Payroll and Revenue of Seed Capital Fund Companies

Calendar Year	Total Reported FTE	Reported FTE in Oklahoma	Annual Payroll Reported (millions)	Reported Annual Revenue (millions)	Annual Average Wage Reported
2008	49	43	$4.4	$5.4	$102,000
2009	47	30	$3.9	$6.0	$97,626
2010	50	33	$4.1	$3.0	$93,466
2011	66	49	$5.0	$4.7	$88,081
2012	104	65	$10.5	$6.2	$98,319
2013	130	71	$11.0	$8.6	$94,428
2014	62	58	$8.7	$5.4	$74,736
2015	174	164	$5.1	$12.6	$68,464
2016	243	218	$14.4	$26.5	$75,373
2017	244	227	$15.8	$24.5	$92,197
2018	206	187	$13.4	$24.0	$87,915
2019	201	168	$15.00	$25.00	$84,213
2020	183	148	$17.00	$13.40	$73,053
2021	132	100	$14.00	$9.20	$97,636
Total	**1,891**	**1,561**	**$142.3**	**$174.5**	**$87,679**

Source: i2e

Economic and Fiscal Impact

Economic and Fiscal Impact

A description of the IMPLAN economic impact methodology is provided in **Appendix B**.

The total economic impacts for this incentive are calculated using the reported payroll associated with Seed Capital firms as provided in the annual program survey. It is assumed the payroll for which claims are made represent jobs which otherwise, without the incentive, would not have been created or retained. Because individual survey results are not made available to the Evaluators (for privacy and trade secret concerns), it is not possible to assign an exact amount of payroll to a specific industry, sector, or firm. Therefore, the analysis assumes that in each year evaluated, the industry distribution among survey respondents was the same as the industry distribution among companies receiving investment from the OSCF. Lastly, the survey measures FTEs employed overall and FTEs employed in Oklahoma, but only measures overall payroll. The Evaluators used the proportion of FTEs employed in Oklahoma, as a percentage of overall FTEs, and applied this factor to the overall payroll amount to determine payroll distributed in Oklahoma.

The total economic impact as measured by total payroll impact is significantly larger than the total Seed Capital Fund investments. Since 2008, the Seed Capital firms have reported nearly $115 million in Oklahoma payrolls, translating to am approximately $212 million total payroll impact, at a cost to the OSCF of just $30.6 million. The economic impact model estimates approximately $10 million in State tax revenue, and the Fund has received more than $9 million in repayments from investments, amounting to an $11 million loss to the State. The Evaluators did not receive repayment data after 2018, which likely undercounts the total repayment figure in this calculation.

The Oklahoma Seed Capital Fund has created significant economic impact since its inception. When considering the fiscal impact to the state, the analysis shows a negative return. However, this does not consider the additional capital investment leveraged by providing funding at the key “seed” phase of a startup business’s life cycle. Additionally, the repayment amounts continue to provide funding for future investments, which in turn generate additional payroll and tax revenue to the State.

Table X: Economic Impacts of Seed Capital Companies’ Payroll, 2008-2021

Year	Annual Oklahoma Payroll Reported	Total Payroll Impact	Oklahoma Tax Revenue	Amount of Repayment	Total Seed Capital Fund Investment	Total Return
2008	$3,861,224	$7,483,129	$425,993	$0	($1,932,160)	($1,506,167)
2009	$2,489,362	$4,842,778	$251,808	$3,112	($1,673,702)	($1,418,782)
2010	$2,706,000	$5,330,907	$269,463	$5,231	($403,171)	($128,477)
2011	$3,712,121	$7,249,130	$376,270	$800	($496,079)	($119,009)
2012	$6,562,500	$12,544,447	$669,290	$12,500	($2,088,803)	($1,407,013)
2013	$6,007,692	$11,309,116	$591,485	$20,000	($1,066,209)	($454,724)
2014	$8,138,710	$15,027,794	$760,862	$0	($2,248,853)	($1,487,991)
2015	$4,806,897	$9,497,499	$495,773	$0	($2,886,801)	($2,391,028)
2016	$12,918,519	$24,027,383	$1,123,181	$3,708,990	($1,192,102)	$3,640,069
2017	$14,699,180	$27,285,010	$1,288,754	$4,592,508	($5,087,500)	$793,762
2018	$12,164,078	$21,903,532	$1,083,995	$803,931	($3,687,486)	($1,799,560)
2019	$12,537,313	$22,695,925	$1,153,958		($3,950,000)	($2,796,042)
2020	$13,748,634	$24,387,215	$982,806		($3,050,000)	($2,067,194)
2021	$10,606,061	$18,855,759	$764,802		($875,000)	($110,198)
Total	**$114,958,290**	**$212,439,625**	**$10,238,441**	**$9,147,072**	**($30,637,866)**	**($11,252,353)**

Incentive Benchmarking

Benchmarking

A detailed description of comparable state programs can be found in **Appendix B.**

For evaluation purposes, benchmarking provides information related to how peer states use and evaluate similar incentives. At the outset, it should be understood that no states are 'perfect peers' – there will be multiple differences in economic, demographic and political factors that will have to be considered in any analysis; likewise, it is exceedingly rare that any two state incentive programs will be exactly the same.[9] These benchmarking realities must be taken into consideration when making comparisons – and, for the sake of brevity, the report will not continually re-make this point throughout the discussion.

The process of creating a comparison group for incentives typically begins with bordering states. This is generally the starting point, because proximity often leads states to compete for the same regional businesses or business/industry investments. Second, neighboring states often (but not always) have similar economic, demographic or political structures that lend themselves to comparison.

State efforts to support startups with venture capital funding generally fall into four categories:

- **Direct Investment** in which the state acts in the role of fund manager. This structure is becoming increasingly rare as most states take a more passive approach to investing that more often falls into the following three categories.
- **Third-party Managed Funds** in which the state uses an external firm to manage the fund and its investments. A 2016 review of the Federal Government's SSBCI program found that most states receiving SSBCI funding for venture capital programs used this method of investment. OSCF would fall under this category. Other examples include Indiana's Elevate Ventures, Missouri's IDEA Fund, and Pennsylvania's Ben Franklin Technology Partners.
- **Fund of Funds** in which the state allocates capital to multiple funds. Examples of this structure are Iowa's Fund of Funds, Florida's Opportunity Fund, and the Indiana Seed Fund.
- **Co-Investment Funds** in which the state invests simultaneously with private investors in deals meeting certain requirements. In this model, the state does not take an active approach in evaluating individual companies. Arkansas' Co-Investment Fund, Tennessee's INCITE Co-Investment Fund, and West Virginia's Seed Capital Co-Investment Fund are examples of programs with this model.

In addition to the method of investment, state programs are also differentiated by how investments are financed. Smaller early-stage focused funds making are typically supported through appropriations. Several larger venture capital funds have been funded at least partially using the sale of tax credits, including the Ohio Capital Fund, the Michigan Venture Fund and Iowa's Fund of Funds programs are funded through tax credits.

Due to significant variation among state approaches to venture capital, there are few programs that are truly comparable to the OSCF. The examples of comparable programs include the following:

- **Vermont Seed Capital Fund** is focused on early-stage technology-based startups in Vermont. It is privately managed by the Vermont Center for Emerging Technologies (VCET) but was initially funded with $5.1 million from the State of Vermont and U.S. Senator Patrick J. Leahy, with about $4.1 million appropriated by the state (no new funds were appropriated in 2021).[10] Similarly to i2e, VCET offers startups a wide range of services including networking, research, and active engagement with startups as they move through the development cycle. All investment returns to the state are reinvested in the fund, similarly to the OSCF.

[9] The primary instances of exactly alike state incentive programs occur when states choose to 'piggyback' onto federal programs.
[10] Vermont Economic Development Authority Financial Statements, June 30 2021. Accessed electronically at https://www.veda.org/hubfs/WEBSITE_CONTENT/Financials/VEDA%20Financials_2021_FINAL.pdf

An important difference between the Vermont Seed Capital Fund and OSCF is the range of potential investment. Vermont Seed Capital Fund guidelines offer investments ranging from $25,000 to $250,000 while OSCF investments are typically larger and generally range from $200,000 to $1,500,000.[11] There is also no requirement for matching funds.

- **The Arkansas Seed Capital Investment Program** is designed to provide working capital to technology-based startups in Arkansas. Investments are subject to a review process similar to OSCF's with investments of up to $500,000. Unlike OSCF's model, investments are made directly by the Arkansas Science and Technology Authority, with no third-party manager.[12] The matching funds requirement is higher in Arkansas as well at 3:1.

- **The Colorado Venture Authority** makes seed-stage investments in Colorado startups through its fund manager, High Country Venture. While this general structure is similar to the relationship between i2e and OCAST, investment guidelines of the program differ. Portions of the total amount invested by the fund must be made in businesses located in rural areas or distressed urban communities. This program also differs significantly in that it was capitalized by the sale of tax credits, rather than direct appropriation. The authority was permitted to sell a total of $50 million of insurance premium tax credits, at the rate of $5 million per, over the ten year period between 2005 and 2014. Following this period, the intent is for the fund to use investment returns to sustain itself.[13] As a likely consequence, there is no matching funds requirement.

In addition to these investment approaches, it is also common for states to support venture capital investment by offering tax credits to eligible investors. A total of 16 states were found to offer some form of tax credit for qualified venture capital investment.

Benchmarking Program Evaluations

There have been few meaningful evaluations of the impact of state venture capital funds. Part of this may be due to the long-term nature of these funds and the lack of complete results to date. However, there have been several studies reviewing the characteristics of successful programs which will be discussed during the remainder of this section.

The US Treasury Department has supported state venture capital funds through the State Small Business Credit Initiative (SSBCI). In 2013, a report prepared for the Treasury Department reviewed several best practices seen in funds that received allocations from SSBCI.[14] Many of the best practices included in the report focus on the importance of using experienced, knowledgeable investment managers focused on building a capacity for entrepreneurship in their state. These managers are better able to build long-term, sustainable growth in an entrepreneurial ecosystem and align investment decisions with the state's economic development interests. It also noted the importance of managing expectations for fund returns. The best managers set realistic expectations for "comprehensive returns" which include both direct and indirect returns of an investment over the long-term. In a subsequent report published by the Treasury Department in 2016, Pennsylvania's Ben Franklin Technology Partners was highlighted as succeeding in this area for accounting for tax receipts and jobs created in the program's impact report.[15] The same 2016 report found that among the four major categories of state venture capital funds, third-party managed state venture capital funds

[11] Vermont Seed Capital Fund website. Accessed electronically at https://vcet.co/capital/
[12] Arkansas Seed Capital Investment Program Rules. Accessed electronically at https://www.arkansasedc.com/docs/default-source/s-t/seedcaprules.pdf?sfvrsn=ab7e8c36_2
[13] Colorado Venture Authority statutory reference. Accessed electronically at https://choosecolorado.com/wp-content/uploads/2012/07/VCA-Statute-from-Roland.pdf
[14] "Information and Observations on State Venture Capital Programs, Report for the U.S. Department of the Treasury and Interested Parties in the State Small Business Credit Initiative," February 2013.
[15] State Small Business Credit Initiative, "Program Evaluation of The US Department of Treasury State Small Business Credit Initiative" Accessed electronically at https://www.treasury.gov/resource-center/sb-programs/Documents/SSBCI%20Program%20Evaluation%202016%20-%20Full%20Report.pdf

achieved the highest ratio private capital leveraged. In total, third-party managed SSBCI venture capital funds were able to leverage almost $13 of private capital for each dollar of public investment.

Many of the same best practices are echoed in a 2015 report published by the Kauffman Foundation, but the report also places a particular emphasis on the opportunity for government sponsored venture capital funds to facilitate networking and create a greater entrepreneurial ecosystem.[16] In order expand networking opportunities, the report recommends venture capital funds make several small investments that bring several entrepreneurs together to form a support group. It also recommends locating startups that have received funding in incubators to further promote networking and support. The report goes beyond the best practices in the Treasury's report by suggesting best practices for data collection. It recommends clear communication of criteria for success to all stakeholders. Possible criteria include sustainability of the firm, sales growth, profitability, successful mergers, and IPOs. The authors suggest that the number of firms invested and the amount of jobs created do not determine the impact of investments.

A 2010 report by the National Bureau of Economic Research reviewed the impact of government-sponsored venture capitalists (GVC) on firm success at an international level. The report had several findings regarding how the level and method of government support impacted firm success. It found that a modest amount of GVC support improved firm performance, while a high level of support was associated with weaker performance. It also found that GVC finance is most effective when the government-sponsor has little control over the fund's business decisions.[17]

[16] Ewing Marion Kauffman Foundation, "Guidelines for Local and State Governments to Promote Entrepreneurship.March 2015. Accessed electronically at https://www.kauffman.org/what-we-do/research/2015/03/guidelines-for-local-and-state-governments-to-promote-entrepreneurship

[17] National Bureau of Economic Research, "The Effects of Government-Sponsored Venture Capital: International Evidence", November 2010. Accessed electronically at https://www.nber.org/papers/w16521.pdf

Appendices

Appendix A: Incentive Statute

A. There is hereby created in the State Treasury a revolving fund for the Oklahoma Center for the Advancement of Science and Technology to be designated the "Seed-Capital Revolving Fund". The fund shall be a continuing fund, not subject to fiscal year limitations. The fund shall consist of all monies authorized by law for deposit in the fund including but not limited to gifts, grants, private donations and funds by government entities authorized to provide funding for the purposes authorized for use of the fund and with payments on loans made from the fund, rents, dividends paid on shares of stock purchased with monies from the fund, royalty proceeds, or any other form of return on authorized investments made by the Center. All monies accruing to the credit of said fund are hereby appropriated and may be budgeted and expended by the Oklahoma Center for the Advancement of Science and Technology for use as seed-capital for enterprises and for the purposes set forth in this section, and shall not be used for administrative, management, or operating expenses of the Center. Expenditures from said fund shall be made upon warrants issued by the State Treasurer against claims filed as prescribed by law with the Director of the Office of Management and Enterprise Services for approval and payment.

B. The Seed-Capital Revolving Fund shall be managed consistent with the long-term goal that revenues earned from investment of the fund be used to cover administrative costs of the fund. The Center may contract with the Commercialization Center or another entity to manage the Seed-Capital Revolving Fund and to carry out the activities set forth in this section.

C. The Center may use the Seed-Capital Revolving Fund to provide seed-capital to enterprises and to carry out the purposes of the Oklahoma Science and Technology Research and Development Act through authorized investments, including:

1. Loans, loans convertible to equity, and equity;

2. Leaseholds;

3. Management or consultant service agreements;

4. Loans with stock subscription or similar warrants that are beneficially owned by the Center;

5. Loans with stock subscription or similar warrants that are beneficially owned by a party other than the Center;

6. Any other contractual arrangement in which the Center is providing scientific and technological services to any federal, state, county or municipal agency, or to any individual, corporation, enterprise, association or any other entity involving science and technology. The Center, in connection with the provision of any form of financial assistance, may enter into royalty agreements with an enterprise;

7. Participation as a general or limited partner in other seed-capital funds or participation as a limited partner in individual cases as authorized by the board of directors;

8. Royalty or other interests in patents, licenses, trade secrets or other technology; and

9. All other seed-capital investments and qualified securities as defined in the Oklahoma Science and Technology Research and Development Act.

D. The Center may use the Seed-Capital Revolving Fund to purchase qualified securities issued by enterprises engaged in new product or process innovations subject to the conditions set forth in this section.

E. The Center may use the Seed-Capital Revolving Fund to make loans for business incubator facilities in exchange for interests in the enterprises.

F. The Center shall make authorized seed-capital investments in enterprises engaged in new product or process innovations only after:

1. Receipt of an application from the enterprise which contains:

a. a business plan including a description of the enterprise and its management, product and market,

b. a statement of the amount, timing and projected use of the capital required,

c. a statement of the potential economic impact of the enterprise, including the number, location and types of jobs expected to be created, and

d. such other information as the Center board of directors shall request.; and2. Approval of the investment by the Center. Such approval may be made after the board of directors finds, based upon the application submitted by the enterprise and such additional investigation as the staff of the Center shall make and incorporate in its minutes, or based on the recommendation of the fund manager, if the Center contracts with the Commercialization Center or another entity to manage the Seed-Capital Revolving Fund, that:

a. the proceeds of the investment or financial assistance will be used only to cover the seed-capital needs of the enterprise except as authorized by this section,

b. the enterprise has a reasonable chance of success,

c. the Center's participation is instrumental to the success of the enterprise and will assist in its retention within the state,

d. the Center's investment is leveraged by at least one additional equity or near-equity investor,

e. the enterprise has the reasonable potential to enhance employment opportunities within the state,

f. the entrepreneur and other founders of the enterprise have already made or are contractually committed to make an appropriate financial and time commitment to the enterprise,

g. any securities to be purchased are qualified securities,

h. there is a reasonable possibility that the Center will recoup at least its initial investment or financial commitment, and

i. binding commitments have been made to the Center by the enterprise for adequate reporting of financial data to the Center, which shall include a requirement for an annual report, or if required by the board, an annual audit of the financial and operational records of the enterprise, and for such control on the part of the Center as the board of directors shall consider prudent over the management of the enterprise, so as to protect the investment or financial commitment of the Center, including in the discretion of the board and without limitation, right of access to financial and other records of the enterprise, and membership or representation on the board of directors of the enterprise.

G. The board of directors shall create an investment committee to assist in evaluating potential investments in qualified securities and provision of other forms of authorized financial assistance. The membership of this investment committee shall serve at the pleasure of the board and shall consist of:

1. No more than two members of the board of directors, neither of whom serves on any advisory committee to the Center; and

2. Persons drawn from sources other than the Center who meet standards similar to those applying to the board of directors and who are recognized by their peers for outstanding knowledge and leadership in their fields, all of whom shall serve at the pleasure of the board.

H. The Center shall not make investments in qualified securities issued by enterprises in excess of the amount necessary to own more than forty-nine percent (49%) of qualified securities in any one enterprise at the time such securities are purchased by the Center, after giving effect to the conversion of all outstanding convertible qualified securities of the enterprise; however, in the event of severe financial difficulty of the enterprise, threatening, in the judgment of the board of directors, the investment of the Center therein, a greater percentage of such securities may be owned by the Center.

Appendix B: IMPLAN Economic Impact Methodology

The economic impact methodology utilized to determine the multiplier effects is IMPLAN (IMpact Analysis for PLANning).

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.

Economic Indicators

Employment
Employment data in IMPLAN follows the same definition as Bureau of Economic Analysis Regional Economic Accounts (BEA REA) and Bureau of Labor Statistics Census of Employment and Wages (BLS CEW) data, which is full-time/part-time annual average. Thus, 1 job lasting 12 months = 2 jobs lasting 6 months each = 3 jobs lasting 4 months each. A job can be either full-time or part-time. Similarly, a job that lasts one quarter of the year would be 0.25 jobs. Note that a person can hold more than one job, so the job count is not necessarily the same as the count of employed persons.

Labor Income
Labor Income represents the total value of all forms of employment income paid throughout a defined economy during a specified period of time. It reflects the combined cost of total payroll paid to employees (e.g. wages and salaries, benefits, payroll taxes) and payments received by self-employed individuals and/or unincorporated business owners (e.g. capital consumption allowance) across the defined economy. Labor Income (LI) encompasses two additional representative metrics called Proprietor Income (PI) and Employee Compensation (EC).

Value Added
Value Added represents the difference between *Output* and the cost of *Intermediate Inputs* throughout a defined economy during a specified period of time. It equals gross Output minus Intermediate Inputs (consumption of goods and services purchased from other industries or imported). Value Added is a measure of the contribution to GDP made by an individual producer, Industry, or Sector.

Output
All analysis in IMPLAN is based on Output, which is the value of production by industry in a calendar year. IMPLAN Output data largely come from the same sources as those used by the BEA in developing their Benchmark Input-Output tables. Since output is the total production value of a Sector, it includes all components of production value or output for a given Sector: Output = Employee Compensation + Proprietor Income + Intermediate Expenditures + Tax on Production and Imports + Other Property Income.

Economic Effects

Input-Output (I-O) Analysis and IMPLAN (SAM) is designed to predict the ripple effect of an economic activity by using data about previous spending. Production in a given Sector in an economy supports demand for production in Sectors throughout the economy, both due to supply chain spending and spending by workers.

Direct Effect
A Direct effect is the initial exogenous change in final demand in terms of Industry Output, Employment, and Labor Income Dollars. When consumers purchase goods and services, they create final demand to the Industries producing the goods and services they consume. When you analyze final demand in IMPLAN, we call this a Direct Effect.

Indirect Effect
Indirect effects are the business to business purchases in the supply chain taking place in the region that stem from the initial industry input purchases. As the Industry specified in an Event spends their money in the region with their suppliers, this spending is shown through the Indirect Effect.

Induced Effect
The Induced Effects stem from income being spent throughout the Selected Region. Typically, the income being analyzed are the wages of employees working in the Direct/Indirect Industries.

Appendix C: Comparable State Programs

State	Program Name	Company Size Limitations	Location Requirements	Investment Amount	Required Matching Capital
Oklahoma	**Seed Capital Fund**	**None**	**50% of more of employees / assets in Oklahoma**	**Typically between $200,000 and $1.5 million**	**50%**
Arkansas	Seed Capital Investment Program	None	Located in Arkansas	$500,000 maximum	3:1 match
Colorado	Colorado Venture Authority	Fewer than 500 employees and under $7.5M annual receipts	Headquartered in Colorado	$500,000 maximum	None
Vermont	Seed Capital Fund	$3M in trailing 12 months sales	Located outside of Vermont	$250,000 maximum	None