

Economic Impacts of Connecticut Innovations' Investment Programs

Performed For:

Connecticut Innovations

Performed By:

TEconomy Partners, LLC

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TEconomy Partners, LLC is a global leader in research, analysis, and strategy for innovation-driven economic development. Today, we are helping nations, states, regions, universities, and industries blueprint their future and translate knowledge into prosperity.

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Connecticut's Investments in Response to the Innovation Challenge

In a complicated, ever-changing, and innovation-driven global economy, those places that cultivate an environment where innovation and entrepreneurship thrive are often among the most competitive. As noted by the U.S. Council on Competitiveness in its recent report:

Technology and innovation—the combination of imagination, insight, ingenuity, invention, and impact in society—are the main drivers of U.S. economic growth and productivity, the main shapers of the future, and principal determinants of economic opportunities and national security for Americans. With such impact for the Nation, U.S. capacity, capability, and performance in leveraging new technology for economic gain and for innovating should be at the top of the economic and national security agenda, and of major concern to U.S. public and private sector leaders.¹

As a result, states across the nation are recognizing the economic benefits of robust entrepreneurship and the role it plays in today's innovation-based economy and are developing policies and programs to foster an environment that creates, attracts, and retains entrepreneurs as well as cultivates an ecosystem to support them.

Connecticut Innovations plays a vital role in developing a risk capital landscape for innovation-based economic development across the State of Connecticut that helps support entrepreneurs. Created by the State of Connecticut in 1989 as a quasi-public agency, today Connecticut Innovations is the state's strategic venture capital arm and is the leading source of financing and ongoing support for innovative, growing companies. By offering equity investments, strategic guidance, and introductions to valuable partners, Connecticut Innovations helps promising businesses to thrive through the operation of four core programs: Venture, Loans, Sales and Use Tax Exemption, and Innovation Programs.

In the Fall of 2016, Connecticut Innovations engaged TEconomy Partners, LLC (TEconomy) to undertake a performance audit of its activities. The 2016 study, entitled *Compensation Benchmarking and Performance Audit*, found that given the significant economic return on investment generated by Connecticut Innovations' programs, the State of Connecticut should continue to invest in its programs. This study was updated in the Spring of 2021 and examined programmatic data through FY 2020, which further solidified the original study's finding that Connecticut Innovation's programs provided a strong return on investment to the State of Connecticut. Wanting to understand how its program portfolio has performed since the last study, Connecticut Innovations has once again engaged TEconomy to undertake a performance audit of Connecticut Innovations' programmatic investments to better understand how Connecticut Innovations has performed and what has been the return on investment of its programs since the last assessment.

¹ The Council on Competitiveness, *Competing in the Next Economy: The New Age of Innovation*, (National Commission on Innovation & Competitiveness Frontiers, 2020.)
https://www.compete.org/storage/documents/documents/CoC_Commission_NextEcon_121620_FINAL.pdf

Study Methodology

Economic impact analysis is an effective way of modeling the economic contribution of a program or an investment on a state economy. In the case of Connecticut Innovations' programs, the analysis focuses on the impact of these programs on early-stage technology companies and university-based research commercialization and technology transfer activities. Economic impact analyses typically measure three major channels through which an investment generates economic activity:

- **Direct effects:** The direct employment and other economic activity generated by the company's or university's operations and expenditures.
- **Indirect effects:** The demand generated for supplier firms by the target company or university.
- **Induced effects:** The additional economic activity generated by the spending of these supplier firms and employees on the overall economy.

The sum of these three effects is referred to as the **total impact**.

This concept of how a dollar of investment is re-spent multiple times throughout the economy as it passes from business to business or business to employee is known as the "multiplier effect." The result of the multiplier effect is that one dollar of investment ends up having a total economic impact that is a few multiples higher.

Multiplier effects are larger when the initial investment spurs follow-on investment, when the consumption component, including purchases from suppliers, is higher, and when the spending occurs locally. For example, all other things being equal, if a state invests \$10 million in risk capital for early-stage companies:

- The direct effect of this investment shows up as employment, salaries, and spending to commercialize products and raise follow-on funding from other sources.
- The indirect effect is the impact on the local companies that provide legal, marketing, accounting, human resources and other business and technical services and supplies to these early-stage companies.
- The induced effect is the impact of the technology company employees and supplier employees spending their disposable income in the local economy.

In the case of Connecticut Innovations, there are direct economic effects stemming from Connecticut Innovations' investments in companies and university commercialization activities, and related indirect and induced effects from this investment. Combined, these economic effects measure the total economic impacts of Connecticut Innovations' investments. TEconomy **estimated the total economic impact** for Connecticut Innovations' total portfolio over the operational window of FY 2021 through FY 2023 as well as for its four core programs²:

- **Venture Program:** The total investment in Connecticut Innovations' portfolio companies, reported employment, and any reported sales for the fiscal year 2021-2023 period.

² TEconomy also measured the economic impact of the Connecticut's Angel Investor Tax Credit that Connecticut Innovations administers. The analysis can be found in Appendix A.

- **Loans Program:** The value of loans made by Connecticut Innovations and by private banks in portfolio companies for the fiscal year 2021-2023 period.
- **Sales and Use Tax Exemption Program:** The dollar value of waived sales and use taxes granted by Connecticut Innovations during the fiscal year 2021-2023 period.
- **Innovation Program:** the investments made using the Connecticut Bioscience Innovation Fund (CBIF) during the fiscal year 2021-2023 period.

TEconomy worked with Connecticut Innovations to collect the relevant program data.³ TEconomy analyzed and collated the data for use with the IMPLAN system to run the economic impact analysis. IMPLAN is one of the most widely used and respected providers of economic impact modeling software.

TEconomy then used these economic impact estimates for the FY 2021 – FY 2023 period combined with the FY 2010 – FY 2020 impact estimates from the prior reports to **calculate two measures of economic return** on Connecticut Innovations’ program investments for the entire FY 2010 – FY 2023 period:

- **Economic Activity Return on Investment:** The amount of economic activity, as measured by total economic output impact, generated for every state dollar invested by Connecticut Innovations, and
- **Tax Revenue Return on Investment:** The amount of state/local tax revenue generated by this economic activity for every state dollar invested by Connecticut Innovations.

Economic Impact of Connecticut Innovations’ Investment Portfolio FY 2021 – FY 2023

A hallmark of successful innovation programs is their ongoing evaluation by the program leadership to ensure that funding is going to high economic impact areas. Each of Connecticut Innovations’ four programs and their economic impact on the State of Connecticut from FY 2021 through FY 2023 are presented below.

Venture Program

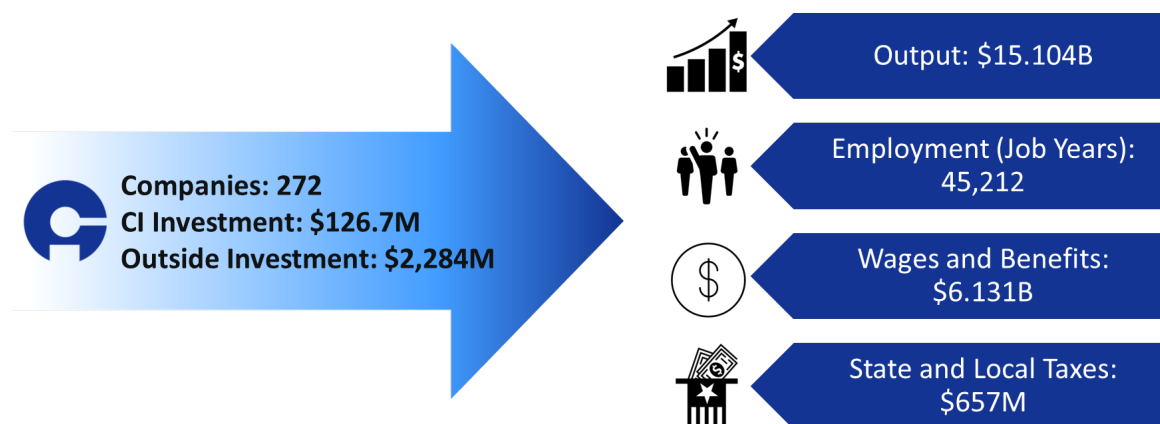
Connecticut Innovations makes equity and convertible debt investments in early-stage technology companies through a series of programs, including the Future Fund, the ClimateTech Fund, the Pre-Seed Investment Fund, and the Proof-of-Concept Fund. Each investment typically requires a minimum dollar-for-dollar co-investment by the private sector. The goal of these investments, coupled with the targeted business assistance provided by Connecticut Innovations, is to help portfolio companies achieve critical technical and business milestones. Achieving these milestones can help secure additional follow-on rounds from private investors, thereby leveraging Connecticut Innovations’ initial investment. The companies use these investment dollars to hire and procure other services and inputs as they strive to bring their products to market and increase sales.

TEconomy modeled both the total investment in Connecticut Innovations’ portfolio companies, reported employment, and any reported sales. Connecticut Innovations’ Venture Program invested nearly \$127 million in 272 companies between FY 2021 and FY 2023, leveraging an additional \$2.3 billion

³ Connecticut Innovations’ programmatic data used to calculate the impact analysis can be found in Appendix B.

in follow-on investment. The leveraging effect of these Connecticut Innovations' investments showed a substantial increase from the prior period, leveraging \$971 million more during the FY 2021 – FY 2023 period (a total of \$2.45 million), while investing \$10 million less than the prior four year FY 2017 – FY 2020 period. This increased overall investment and the resulting sales and employment generated by the firms receiving these investments led to a significant increase in the overall economic impacts for the FY 2021 – FY 2023 period.⁴ The impact of Connecticut Innovations' Venture Program is illustrated in Figure 1.⁵

Figure 1: Connecticut Innovations' Venture Program Economic Impact: FY 2021 – FY 2023



As further detailed in Table 1, Connecticut Innovations' Venture Program generated:

- More than 45,200 job years with wages and benefits totaling more than \$6.1 billion,
- \$15.1 billion of economic output, and
- \$657 million of local/county and state tax revenue for the State of Connecticut.

Table 1: Detailed Economic Impacts from Venture Program Investments, FY 2021 – FY 2023 (\$M)

Impact Type	Employment (Job Years)	\$ in Millions					
		Labor Income	Value Added	Output	Local/County Tax Revenues	State Tax Revenues	Federal Tax Revenues
Direct Effect	11,453	\$3,451.2	\$4,473.0	\$7,985.8	\$76.2	\$176.5	\$846.0
Indirect Effect	15,196	\$1,349.0	\$1,985.3	\$3,437.8	\$53.2	\$91.7	\$340.2
Induced Effect	18,563	\$1,331.2	\$2,344.6	\$3,680.3	\$116.2	\$142.8	\$351.0
Total Impacts	45,212	\$6,131.4	\$8,802.9	\$15,103.9	\$245.6	\$411.0	\$1,537.1
<i>Multiplier</i>	3.95	1.78	1.97	1.89			

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2022 IMPLAN Connecticut statewide impact model.

⁴ See Appendix B for details regarding the leveraging effect of Connecticut Innovations' investments.

⁵ These impact analyses capture a cumulative three years of impacts; hence employment is provided as job years (e.g., one job that was active for all three years of the analysis would be represented as 3 job years).

Loan Program

Connecticut Innovations' debt financing helps early-stage and later-stage businesses obtain venture or mezzanine debt for capital expenditures and working capital. The interest rate is typically fixed between 6 percent and 12 percent for the life of the debt. Warrants are part of the overall pricing and range from 5 percent to 25 percent of the loan amount. The maturity of the debt is generally 3 to 5 years.

Connecticut Innovations partners with private banks on some of the loans. As illustrated in Figure 2, TEconomy modeled the value of loans made by Connecticut Innovations and by private banks to Connecticut companies for fiscal years 2021 through 2023 totaling \$2.2 million. It is important to note the size of the loan program, in terms of new loans, has been reduced by more than \$13 million compared to the prior FY 2017 – FY 2020 period. While the economic impacts are less pronounced than for the Venture Program, it is important to remember that the majority of this money, plus interest, comes back to the state through loan repayment.

Figure 2: Connecticut Innovations' Loan Program Economic Impact: FY 2021 – FY 2023



As illustrated in Figure 2 and further detailed in Table 2, Connecticut Innovations' \$2.2 million in loans to 5 companies between FY 2021 and FY 2023 generated:

- 14 job years with wages and benefits totaling \$1.4 million,
- \$3.7 million of economic output, and
- \$0.2 million of local/county and state tax revenue for the State of Connecticut.

Table 2: Detailed Economic Impacts from Loan Program Investments, FY 2021 – FY 2023 (\$M)

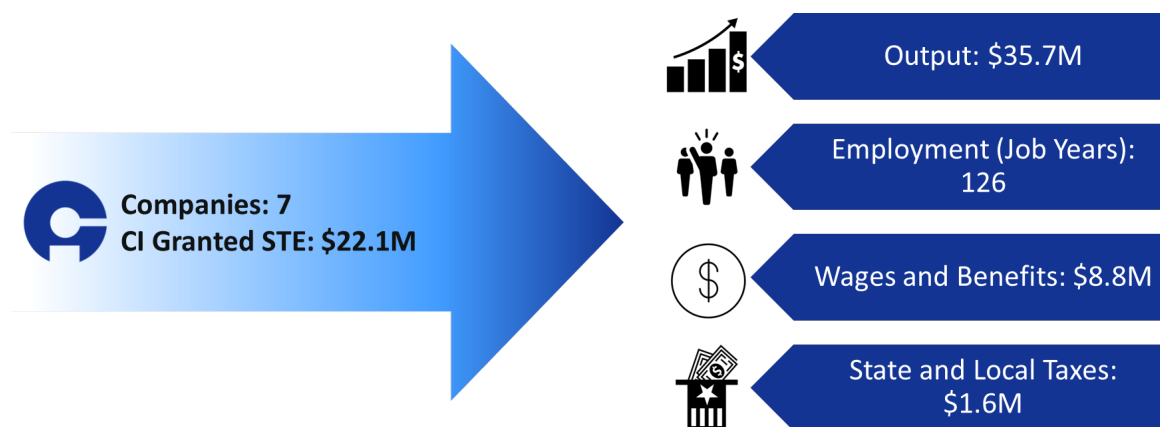
Impact Type	Employment (Job Years)	\$ in Millions					
		Labor Income	Value Added	Output	Local/County Tax Revenues	State Tax Revenues	Federal Tax Revenues
Direct Effect	8	\$0.9	\$1.4	\$2.3	\$0.0	\$0.1	\$0.2
Indirect Effect	2	\$0.2	\$0.3	\$0.6	\$0.0	\$0.0	\$0.1
Induced Effect	4	\$0.3	\$0.5	\$0.9	\$0.0	\$0.0	\$0.1
Total Impacts	14	\$1.4	\$2.3	\$3.7	\$0.1	\$0.1	\$0.4
<i>Multiplier</i>	<i>1.89</i>	<i>1.61</i>	<i>1.64</i>	<i>1.63</i>			

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2022 IMPLAN Connecticut statewide impact model.

Sales and Use Tax Exemption Program

Connecticut Innovations acts as a conduit for a sales and use tax exemption (STE) for a company's anticipated qualifying capital equipment and/or construction materials. This exemption induces large scale constructions project by relieving the company and/or the developer from the state's 6.35 percent sales tax. Projects must be greater than \$5 million and have the potential to realize significant economic impact. The Connecticut Innovations' Board approves the total amount of the exemption subject to review and approval by the Connecticut Department of Revenue Services. The impact of Connecticut Innovations' Sales and Use Tax Exemption Program is illustrated in Figure 3.

Figure 3: Connecticut Innovations' Sales and Use Tax Exemption Program Economic Impact: FY 2021 – FY 2023



As further detailed in Table 3, \$22.1 million in sales and use tax exemptions were granted by Connecticut Innovations across 7 companies between FY 2021 and FY 2023 generating:

- 126 job years with wages and benefits totaling \$8.8 million,
- \$35.7 million of economic output, and
- \$1.6 million of local/county and state tax revenue for the State of Connecticut.

Table 3: Detailed Economic Impacts from Sales and Use Tax Exemption Program, FY 2021 – FY 2023 (\$M)

Impact Type	Employment (Job Years)	\$ in Millions					
		Labor Income	Value Added	Output	Local/County Tax Revenues	State Tax Revenues	Federal Tax Revenues
Direct Effect	57	\$4.2	\$11.2	\$21.5	\$0.3	\$0.5	\$1.2
Indirect Effect	43	\$2.7	\$5.1	\$8.9	\$0.2	\$0.2	\$0.7
Induced Effect	27	\$1.9	\$3.4	\$5.3	\$0.2	\$0.2	\$0.5
Total Impacts	126	\$8.8	\$19.6	\$35.7	\$0.6	\$1.0	\$2.5
<i>Multiplier</i>	2.23	2.11	1.75	1.66			

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2022 IMPLAN Connecticut statewide impact model.

Innovation Program (Connecticut Bioscience Investment Fund)

Connecticut Innovations makes equity investments to help spur bioscience breakthroughs and accelerate the commercialization process in order to move healthcare-related products from the lab to the market and help companies grow in the state. The Connecticut Bioscience Innovation Fund (CBIF) provides competitive research commercialization grants, loans, and equity investment to start-ups and early-stage companies, non-profits, and accredited colleges and universities. CBIF is a \$200 million fund to be invested over a 10-year period and is focused on technologies with nearer-term commercialization potential. The impact of CBIF during the time period analyzed is illustrated in Figure 4.

Figure 4: Connecticut Innovations' CBIF Economic Impact: FY 2021 – FY 2023



As further detailed in Table 4, CBIF invested \$1.4 million in 11 activities between FY 2021 and FY 2023, which generated:

- 10 job years with wages and benefits totaling \$800,000,
- \$3.7 million of economic output, and
- Just over \$100,000 of local/county and state tax revenue for the State of Connecticut.

Table 4: Economic Impacts from Connecticut Bioscience Investment Fund, FY 2021 – FY 2023 (\$M)

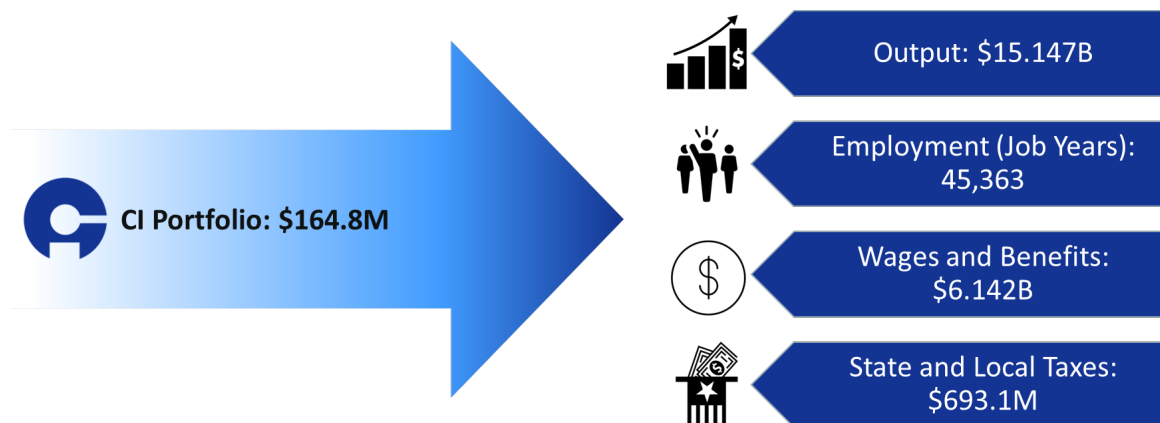
Impact Type	Employment (Job Years)	\$ in Millions					
		Labor Income	Value Added	Output	Local/County Tax Revenues	State Tax Revenues	Federal Tax Revenues
Direct Effect	0	\$0.0	\$0.0	\$1.4	\$0.0	\$0.0	\$0.0
Indirect Effect	8	\$0.6	\$1.0	\$1.7	\$0.0	\$0.0	\$0.2
Induced Effect	2	\$0.2	\$0.3	\$0.5	\$0.0	\$0.0	\$0.0
Total Impacts	10	\$0.8	\$1.3	\$3.7	\$0.0	\$0.1	\$0.2
<i>Multiplier</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>2.53</i>			

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2022 IMPLAN Connecticut statewide impact model.

Economic Impact of Connecticut Innovations' Total Portfolio

Overall, Connecticut Innovations' portfolio of programs provides strong benefits and positive economic impacts as illustrated in Figure 5.

Figure 5: Economic Impacts of Connecticut Innovations' Total Portfolio: FY 2021 – FY 2023



As further detailed in Table 5, Connecticut Innovations' portfolio of programs totaling nearly \$165 million between FY 2021 and FY 2023 generated:

- Over 45,000 job years with wages and benefits totaling over \$6.1 billion,
- More than \$15 billion of economic output, and
- Nearly \$700 million of local/county and state tax revenue for the State of Connecticut.

Table 5: Economic Impacts from Connecticut Innovations' Total Program Portfolio, FY 2021 – FY 2023 (\$M)

Impact Type	Employment (Job Years)	\$ in Millions					
		Labor Income	Value Added	Output	Local/County Tax Revenues	State Tax Revenues	Federal Tax Revenues
Direct Effect	11,518	\$3,456.3	\$4,485.5	\$8,011.0	\$97.7	\$176.8	\$846.7
Indirect Effect	15,249	\$1,352.6	\$1,991.7	\$3,449.0	\$62.1	\$91.9	\$340.7
Induced Effect	18,597	\$1,333.6	\$2,348.8	\$3,687.0	\$121.5	\$143.0	\$351.3
Total Impacts	45,363	\$6,142.5	\$8,826.1	\$15,147.0	\$281.4	\$411.7	\$1,538.7
Multiplier	3.94	1.78	1.97	1.89			

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2022 IMPLAN Connecticut statewide impact model.

Return on Investment of Connecticut Innovations' Investment Portfolio FY 2010 – FY 2023

A key objective of innovation programs is to stimulate broader regional economic activity, including higher levels of economic output through the growth of new enterprises. The actual economic return on investment will vary with program objective, the type of investment mechanism (e.g., grant, loan, or equity), and the stage of development and sector for each company. For example, the potential return on investment for a program that supports technology commercialization at universities through grants would not be expected to have as high a return as a seed-stage investment in a company that goes on to secure follow-on private sector investment. The investment that is closer to the market is more likely to have the higher economic return.

To calculate the economic return on investment, TEconomy used Connecticut Innovations' program data to estimate the total amount of state taxpayer money used to support each of the programs and the total foregone tax revenue from the Sales and Use Tax Exemption. Connecticut Innovations' program data for returns on venture investments (e.g., from acquisitions, initial public offerings, and stock repurchase), payments of principal and interest on issued loans, and follow-on investment in Venture Program portfolio companies was also used (see Table 6).

Table 6: Total Cumulative and Net State Investment in Connecticut Innovations Programs: FY 2010 – FY 2023

CI Program	\$ in Millions		
	Total State Resources Invested in Programs	Direct Returns from Investments (Investment Proceeds and Loan Interest/Fees)	Net State Resources Invested—Used for ROI Calculations
Venture Program	\$416.94	\$242.70	\$174.24
Loan Program	\$144.80	\$98.71	\$46.10
Sales and Use Tax Exemption Program	\$75.38	N/A	\$75.38
CT Bioscience Investment Fund	\$35.69	N/A	\$35.69
Total CI Investments	\$672.81	\$341.41	\$331.41

Source: Connecticut Innovations' program data and TEconomy Partners, LLC calculations.

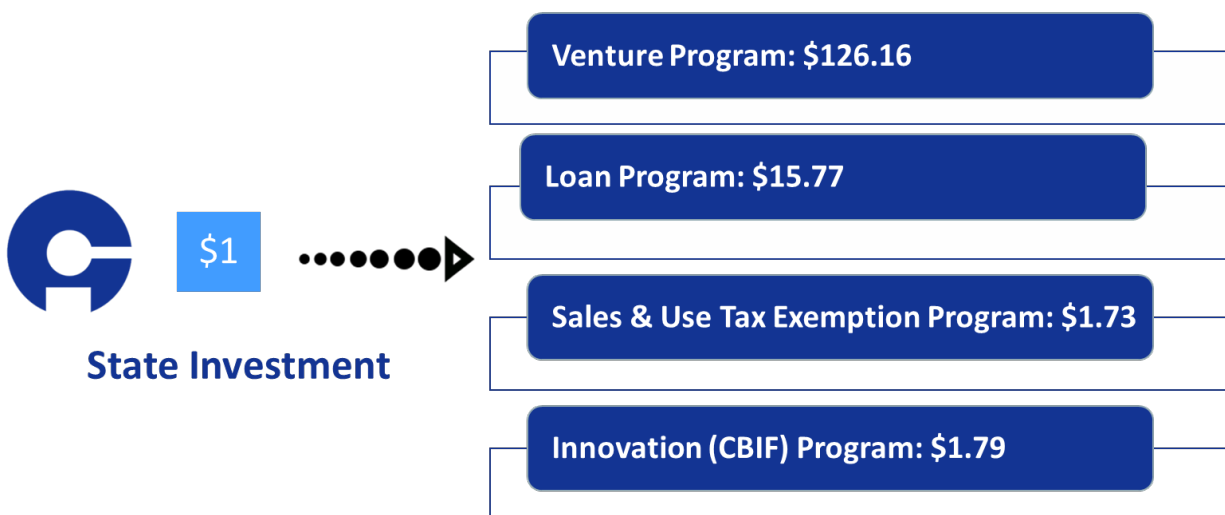
With the significant proceeds and returns to date, the net state resources used for the ROI calculations for both the Venture Program and the Loan Program are actually lower than those used for the FY 2017 – FY 2020 analysis providing for even greater return on investment for the state. Furthermore, the economic return on investment calculations reflect the cumulative 2010-2023 fiscal years. In reality, for both the Venture Program and the Loans Program, both Connecticut Innovations and the State of Connecticut will continue to receive proceeds, returns, repayments, and tax revenues in future years stemming from the investments made over the 2010-2023 period. TEconomy's economic return on investment calculations are presented for each of the four core programs operated by Connecticut Innovations below. The Angel Investor Tax Credit is included in Appendix A. Connecticut Innovations' role in this tax incentive program is purely administrative.

Connecticut Innovations' Economic Activity (Output) Return on Investment: FY 2010 – FY 2023

TEconomy's analysis finds that Connecticut Innovations' programs have had a positive and significant economic activity return on investment (ROI). As Figure 6 illustrates, every taxpayer dollar that Connecticut Innovations' Venture Program invests in early-stage Connecticut technology companies generates \$126.16 in total statewide economic activity through the direct spending of early-stage companies. This is a significant increase since the 2021 analysis, which calculated the return on investment of the Venture Program at \$38.47 at that time. The sizeable increase in the economic activity return on investment stems from continued strong returns and proceeds from Connecticut Innovations' venture investment portfolio. Total proceeds over the FY 2021 – FY 2023 period were more than double the returns received during the FY 2017 – FY 2020 period, reducing the "net" investment portfolio by approximately \$4.5 million, while the cumulative total economic activity attributed and supported by these investments increased by more than \$15 million from FY 2021 – FY 2023.

Connecticut Innovations' Loan Program fosters \$15.77 of state economic activity; the Sales and Use Tax Exemption Program generates \$1.73 in economic activity; and, the Innovation (CBIF) Program, which supports tech transfer and innovation ecosystem capacity building, generates \$1.79 of economic activity. Through these programs, Connecticut Innovations is investing across the innovation ecosystem with the goal of increasing the start-up and scale-up of Connecticut technology companies, strengthening connections among different actors, increasing access to risk capital, and better leveraging the state's research base.

Figure 6: Connecticut Innovations' Economic Activity ROI: FY 2010 – FY 2023



Source: Connecticut Innovations' program data and TEconomy Partners, LLC calculations.

To better understand the ROI performance over the entire FY 2010 – FY 2023 period, Table 7 provides the economic activity ROI for the prior period examined (FY 2010 – FY 2020) and the cumulative results to date (FY 2010 – FY 2023). For the Venture Program, the economic activity returns document both a strong recent return as well as continued strong returns from venture investments made during the prior period. The Loan Program's cumulative economic activity ROI is strongly impacted by continued repayments of prior period loans combined with a lower level of activity in the current period. Given the nature of both the Sales and Use Tax Exemption Program and the Innovation program, returns remained

relatively flat in the recent period. Due to proceeds and strong returns from the Venture and Loan Programs the overall Innovation Program’s cumulative economic activity ROI shows a significant increase over the prior cumulative period.

Table 7: Economic Activity ROI – Prior Cumulative Period and Current Cumulative Period

CI Program	Economic Activity Returns on Net Investment	
	FY 2010 – FY 2020	FY 2010 – FY 2023
Venture Program	\$38.47	\$126.16
Loan Program	\$11.95	\$15.77
Sales and Use Tax Exemption Program	\$1.78	\$1.73
Innovation Program (CBIF)	\$1.76	\$1.79
Total CI Program Investments	\$23.73	\$69.11

Source: Connecticut Innovations’ program data and TEconomy Partners, LLC calculations.

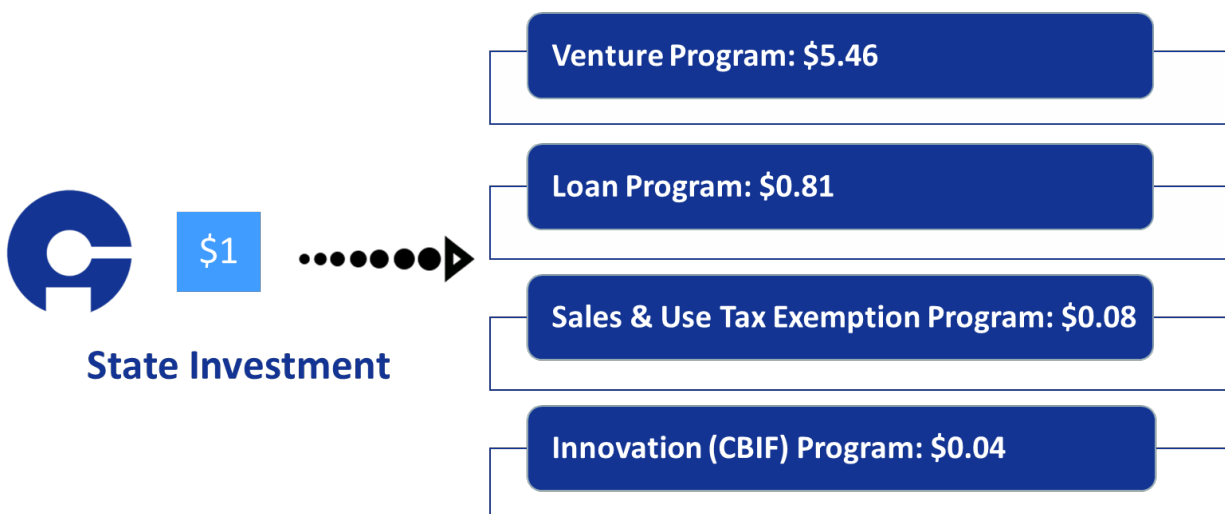
When aggregated, Connecticut Innovations’ total program portfolio, FY 2010 – FY 2023, generated an economic activity return of \$69.11 back to the State of Connecticut for every \$1 invested—a continued strong and growing return to the state regardless of the programmatic benefits afforded by the investment.

Connecticut Innovations’ Tax Revenue Return on Investment: FY 2010 – FY 2023

Tax revenue-basis return on investment analysis for publicly funded, innovation investment programs is a complex undertaking. By its nature, innovation, and the development of companies to push forward this innovation, is a difficult and challenging process. Under the best of circumstances, investments of this nature, from both the public and private sector, are likely to see both successes and failures. The analysis is further hindered as the early stage of these companies often limit their ability to generate corporate revenue and the corresponding tax revenue, limiting the near-term “payback” on these investments. It is important to remember that the goal of publicly funded innovation investment programs is to assist in the development of new ventures in hopes of sustained economic impacts in future years.

With these caveats, it is still important to assess whether Connecticut Innovations’ programs are generating tax returns to the State of Connecticut above and beyond the investment proceeds and loan repayments back into Connecticut Innovations’ portfolio. As Figure 7 illustrates, for every dollar of taxpayer investment, Connecticut Innovations’ Venture Program investments (net of investment proceeds) returns \$5.46 to state and local governments in the form of corporate and personal income tax, sales tax, property tax, and other state and local taxes. Connecticut Innovations’ Loan Program (net of principal and interest repayment) returns \$0.81 for every dollar of taxpayer investment. The Sales and Use Tax Exemption Program returns \$0.08 for every taxpayer dollar invested. Finally, the Innovation (CBIF) Program returns \$0.04 for every taxpayer dollar invested through the taxes generated through indirect and induced spending.

Figure 7: Connecticut Innovation State & Local Tax Revenue ROI: FY 2010 – FY 2023



Source: Connecticut Innovations' program data and TEconomy Partners, LLC calculations.

As with the Economic Activity ROI assessment, the comparative results between the FY 2010 – FY 2020 period and the cumulative FY 2010 – FY 2023 period show higher overall returns for both the Venture and Loan Programs with similar level of returns for the Sales and Use Tax Exemption and Innovation Programs (see Table 8).

Table 8: State & Local Tax ROI – Prior Cumulative Period and Current Cumulative Period

CI Program	State & Local Tax Returns on Net Investment	
	FY 2010 – FY 2020	FY 2010 – FY 2023
Venture Program	\$1.65	\$5.46
Loan Program	\$0.61	\$0.81
Sales and Use Tax Exemption Program	\$0.08	\$0.08
Innovation Program (CBIF)	\$0.04	\$0.04
Total CI Program Investments	\$1.03	\$3.00

Source: Connecticut Innovations' program data and TEconomy Partners, LLC calculations.

From a state and local tax revenue return on investment basis, Connecticut Innovations' total program portfolio returned \$3.00 back to the State of Connecticut for every \$1 invested indicating that on a direct outlay basis these Connecticut Innovation programs have generated a positive and growing return for the State of Connecticut over the last fourteen years.

Summary

Connecticut Innovations represents a significant asset for the State of Connecticut as it seeks to further anchor innovative companies as significant drivers of the state's future economic growth. The 2016 economic impact study and its 2021 update found that Connecticut Innovations' programs provided significant economic impact and a positive economic return on investment, and this updated study examining programmatic data through FY 2023 further solidifies these findings. Given the significant economic return on investment generated by Connecticut Innovations' programs, TEconomy recommends the State of Connecticut continue to invest in these programs. Furthermore, while it might seem desirable to focus solely on Venture Program investments because of the high rate of return, it is imperative that Connecticut Innovations be provided with the flexibility to continue to make programmatic investments as needed across its portfolio of programmatic initiatives. Striking the right balance between continuity versus program evolution in response to new opportunities or diminishing needs will continue to be critical for the future development of Connecticut's innovation-based economy.

Appendix A: Economic Impact of Connecticut's Angel Investment Tax Credit Program

Angels are investors who meet the Securities Exchange Commission's (SEC) standards for accredited investors. To become an angel investor, one must have a minimum net worth of \$1 million and an annual income of \$200,000. Angel investors are typically one of the earliest investors in start-up endeavors, and they exchange their investment dollars for equity. They represent an important source of seed capital for early-stage companies and usually bring industry expertise and networks in addition to capital to their portfolio companies.

The Connecticut Angel Investor Tax Credit (AIRC) provides angel investors with a tax credit that is 25 percent of the amount of the investment up to \$2 million. Though a company does not need to be within the Connecticut Innovations' venture portfolio to receive an angel investment, companies within the portfolio often benefit from the AIRC when securing follow-on investments. In total, AIRC-related investments from Connecticut angels exceeded \$59.6 million in 86 companies between FY 2021 and FY 2023, garnering \$16.1 million in tax credits (see Table A-1).

Table A-1: Connecticut's Angel Investment Tax Credits and Leveraged Investment, FY 2021 – FY 2023 (\$M)

Fiscal Year	State Angel Investment Tax Credit (\$M)	Follow-on Investment (\$M) (private, federal, other)
2021	\$4.384	\$17.636
2022	\$4.932	\$18.767
2023	\$6.769	\$23.509
Cumulative Total, 2021-2023	\$16.085	\$59.613

Source: Connecticut Innovations' program data and TEconomy Partners, LLC calculations.

The economic impact of AITC during the time period analyzed is illustrated in Figure A-1.

Figure A-1: Connecticut's Angel Investment Tax Credit Program Economic Impact: FY 2021 – FY 2023



As further detailed in Table A-2, the angel investments generated:

- 1,465 jobs with wages and benefits totaling more than \$137 million
- \$406.4 million of economic output, and
- Over \$20 million of state and local tax revenue for the State of Connecticut.

Table A-2: Economic Impacts from Angel Investment Tax Credit Program, FY 2021 – FY 2023 (\$ in millions)

Impact Type	Employment (Job Years)	\$ in Millions					
		Labor Income	Value Added	Output	Local/County Tax Revenues	State Tax Revenues	Federal Tax Revenues
Direct Effect	676	\$72.6	\$121.4	\$231.6	\$476.8	\$191.8	\$879.5
Indirect Effect	372	\$34.7	\$53.1	\$92.0	\$347.9	\$105.1	\$372.2
Induced Effect	417	\$29.9	\$52.7	\$82.7	\$258.1	\$152.8	\$370.0
Total Impacts	1,465	\$137.3	\$227.1	\$406.4	\$8.1	\$11.9	\$36.1
<i>Multiplier</i>	<i>2.17</i>	<i>1.89</i>	<i>1.87</i>	<i>1.75</i>			

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2022 IMPLAN Connecticut statewide impact model.

Appendix B: Connecticut Innovation Programmatic Data for Impact Analysis

Table B-1: Connecticut Innovations' Investments and Leveraged Funds for Venture, Loan, Tax Exemption, and Innovation Programs, FY 2021 – FY 2023

Fiscal Year	CI Program	CI Investment (\$M) (Direct or Tax Credit/Exemption)	Follow-on Investment (\$M) (private, federal, other)	Total Investment (\$M)	Leveraging Ratio (1 to _)
2021	Venture	\$37.436	\$708.775	\$746.211	18.93
	Loans	\$1.288	\$0.088	\$1.376	0.07
	Sales Tax Exemption	\$13.250	\$0.000	\$13.250	0.00
	CBIF	\$0.881	\$0.000	\$0.881	0.00
	Total	\$52.855	\$708.863	\$761.718	13.41
2022	Venture	\$54.210	\$1,340.851	\$1,395.061	24.73
	Loans	\$0.900	\$0.000	\$0.900	0.00
	Sales Tax Exemption	\$1.100	\$0.000	\$1.100	0.00
	CBIF	\$0.521	\$0.000	\$0.521	0.00
	Total	\$56.732	\$1,340.851	\$1,397.582	23.64
2023	Venture	\$47.421	\$402.379	\$449.800	8.49
	Loans	\$0.000	\$0.000	\$0.000	-
	Sales Tax Exemption	\$7.750	\$0.000	\$7.750	0.00
	CBIF	\$0.045	\$0.000	\$0.045	0.00
	Total	\$55.216	\$402.379	\$457.595	7.29
Cumulative Total, 2021-2023	Venture	\$139.067	\$2,452.005	\$2,591.072	17.63
	Loans	\$2.188	\$0.088	\$2.276	0.04
	Sales Tax Exemption	\$22.100	\$0.000	\$22.100	0.00
	CBIF	\$1.447	\$0.000	\$1.447	0.00
	Total	\$164.802	\$2,452.093	\$2,616.895	14.88

Source: Connecticut Innovations' program data and TEconomy Partners, LLC calculations.