

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

The global economy is facing a dramatic transformation that is driven increasingly by innovation—through both the creation of new industries as well as the application of technology to traditional industries. Competition is increasing within this innovation-driven economy, and this intense competition does not occur solely between nations. The competition is felt at far smaller spatial scales—individual states, metropolitan areas, counties, and towns. The United States has become a patchwork of economies—some competing well within the global economy, others failing to adapt and experiencing economic decline. The harsh reality of the 21st century economy is that there are, and will continue to be, winners and losers. The core question is, of course, what does it take to be a winner?

Business executives and economists have recognized for many decades that innovation—the introduction of new products and services to the marketplace—is a primary driver of sales growth and, therefore, economic growth. While cost cutting and efficiency improvements can help a company or industry stay competitive in the short-term (which is important for company survival and job retention), the introduction of new products drives sales growth. Innovation is the driver of employment growth in the long-term.

Innovation and entrepreneurship are inextricably linked. The Center for American Entrepreneurship, a nationally focused nonpartisan research, policy, and advocacy organization focused on entrepreneurship, notes as follows:

New ideas are the basic craft and contribution of entrepreneurs. Whether a new product or service, 'building a better mousetrap,' or new methods of producing, distributing, or delivering products and services, new ideas are the essence of innovation, which drives productivity gains and economic growth, and creates jobs, wealth, and opportunity. New ideas can come from the mind and imagination of entrepreneurs or as the result of scientific inquiry and discovery.¹

Small businesses are frequently touted for their significant impact on job growth. An analysis of high-growth firms finds that a small cohort of mostly younger high-growth firms (Gazelles) stood out as high-growth businesses and accounted for roughly 50 percent of new jobs created each year between 1980 and 2010.²

Understanding the importance of innovation and the creation of entrepreneurial firms as a driver of economic growth, the State of Connecticut created Connecticut Innovations (CI) in 1989 as a quasi-public agency with a mission to be a leading source of financing and ongoing support for Connecticut's innovative, growing companies. Connecticut Innovations seeks to fulfill this mission through the provision of flexible financing, strategic guidance, and introductions to valuable partners. Today,

¹ Center for American Entrepreneurship, "Innovation," 2020.

² Ryan Decker, John Haltiwanger, Ron Jarmin, and Javier Miranda; "The Role of Entrepreneurship in US Job Creation and Economic Dynamism"; Journal of Economic Perspectives; Vol. 28, No. 3; Summer 2014.

Connecticut Innovations operates 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. 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.

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 2017 through FY2020 as well as for its four core programs³:

- **Venture Program:** The total investment in Connecticut Innovations' portfolio companies, reported employment, and any reported sales for the fiscal year 2017-2020 period.
- **Loans Program:** The value of loans made by Connecticut Innovations and by private banks in portfolio companies for the fiscal year 2017-2020 period.
- **Sales and Use Tax Exemption Program:** The dollar value of waived sales and use taxes granted by Connecticut Innovations during the fiscal year 2017-2020 period.
- **Innovation Program:** the investments made using the Connecticut Bioscience Innovation Fund (CBIF) during the fiscal year 2017-2020 period.

TEconomy worked with Connecticut Innovations to collect the relevant program data.⁴ 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 2017 – FY2020 period combined with the FY 2010 – FY 2016 impact estimates from the prior report to **calculate two measures of economic return** on Connecticut Innovations' program investments for the entire FY 2010 – FY 2020 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 2017-FY 2020

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 2017 through FY 2020 are presented below.

Venture Program

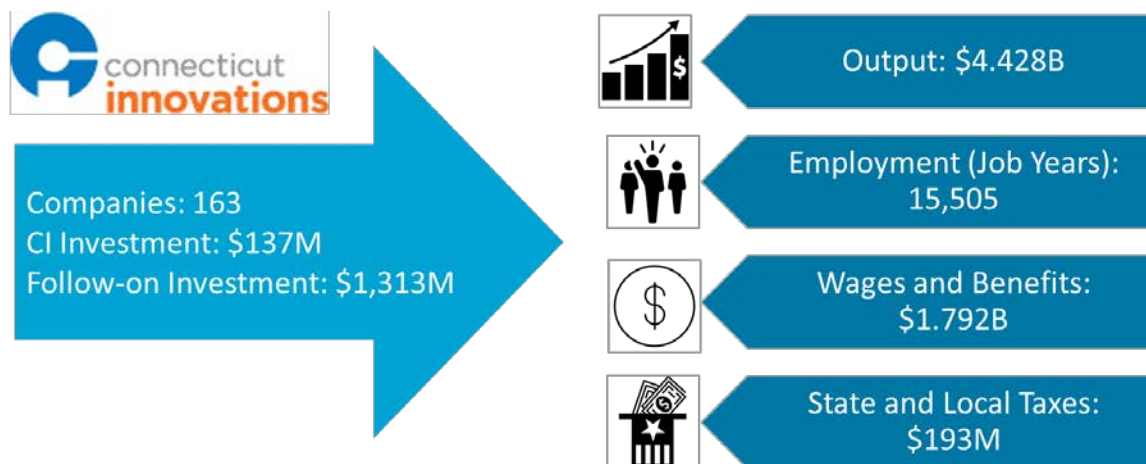
Connecticut Innovations makes equity and convertible debt investments in early-stage technology companies. Each investment typically requires a minimum dollar-for-dollar co-investment by the private sector. The goal of this investment and the targeted business assistance provided by Connecticut Innovations is to help portfolio companies achieve critical technical and business milestones. Achieving these milestones can help secure follow-on rounds from private investors, which is termed the

³ 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.

⁴ Connecticut Innovations' programmatic data used to calculate the impact analysis can be found in Appendix B.

leveraged investment. The companies use these investment dollars to hire and procure other services and inputs as they strive to bring their product to market and increase sales. TEconomy modeled both the total investment in Connecticut Innovations’ portfolio companies, reported employment, and any reported sales. The impact of Connecticut Innovations’ Venture Program that invested \$137 million in 163 companies between FY 2017 and FY 2020, leveraging an additional \$1.3 billion in follow-on investment, is illustrated in Figure 1.⁵

Figure 1: Connecticut Innovations’ Venture Program Economic Impact: FY 2017 – FY 2020



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

- More than 15,500 job years with wages and benefits totaling nearly \$1.8 billion
- \$4.4 billion of economic output, and
- \$193 million of state and local tax revenue for the State of Connecticut.

Table 1: Detailed Economic Impacts from Venture Program Investments, FY 2017 – FY 2020 (\$M)

Impact Type	Employment (Job Years)	Labor Income	Value Added	Output	State & Local Tax Revenues	Federal Tax Revenues
Direct Effect	4,697	\$1,025.9	\$1,392.8	\$2,390.2	\$76.6	\$214.8
Indirect Effect	4,451	\$358.9	\$566.2	\$919.4	\$40.9	\$79.5
Induced Effect	6,357	\$407.1	\$715.8	\$1,118.6	\$75.3	\$95.3
Total Effect	15,505	\$1,791.9	\$2,674.8	\$4,428.1	\$192.8	\$389.6
Multiplier	3.30	1.75	1.92	1.85		

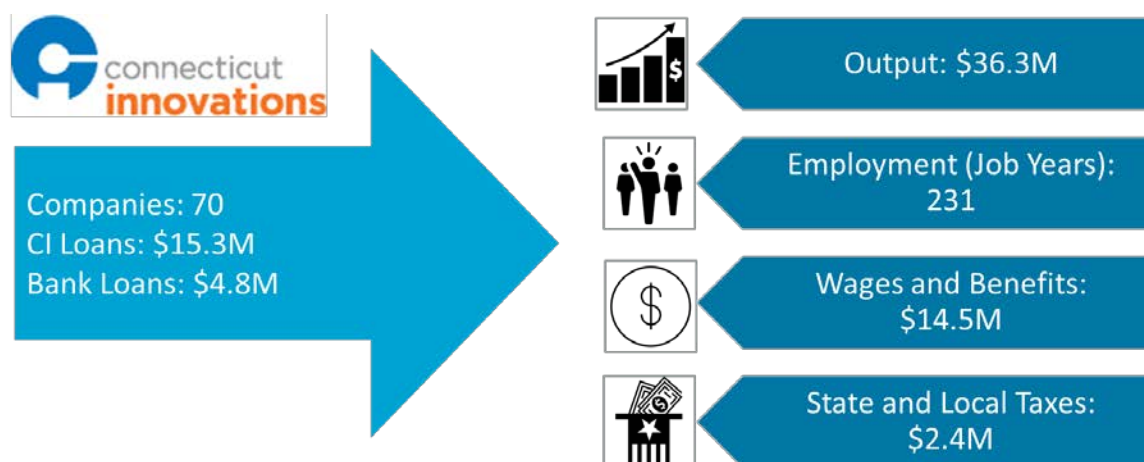
Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2019 IMPLAN Connecticut statewide impact model.

⁵ These impact analyses capture a cumulative four years of impacts; hence employment is provided as job years (e.g., one job that was active for all four years of the analysis would be represented as 4 job years).

Loan Program

Connecticut Innovations’ debt financing helps early- and later-stage companies with capital expenditures and working capital. The interest rate is typically fixed between 5 percent and 10 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 2017 through 2020. 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 2017 – FY 2020



As illustrated in Figure 2 and further detailed in Table 2, Connecticut Innovations’ \$15.3 million in loans in 70 companies between FY 2017 and FY 2020 generated:

- An additional \$4.8 million in bank loans
- 231 job years with wages and benefits totaling \$14.5 million
- \$36.3 million of economic output, and
- \$2.4 million of state and local tax revenue for the State of Connecticut.

Table 2: Detailed Economic Impacts from Loan Program Investments, FY 2017 – FY 2020 (\$M)

Impact Type	Employment (Job Years)	Labor Income	Value Added	Output	State & Local Tax Revenues	Federal Tax Revenues
Direct Effect	141	\$8.5	\$11.9	\$20.1	\$1.5	\$1.9
Indirect Effect	37	\$2.7	\$4.3	\$7.1	\$0.3	\$0.6
Induced Effect	53	\$3.3	\$5.8	\$9.1	\$0.6	\$0.8
Total Effect	231	\$14.5	\$22.0	\$36.3	\$2.4	\$3.3
Multiplier	1.63	1.70	1.85	1.81		

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2019 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: FY2017 – FY2020



As further detailed in Table 3, Connecticut Innovations granted \$53.3 million in sales and use tax exemptions across 13 companies between FY 2017 and FY 2020 generating:

- 399 job years with wages and benefits totaling \$34.6 million
- \$94.9 million of economic output, and
- \$4.1 million of state and local tax revenue for the State of Connecticut.

Table 3: Detailed Economic Impacts from Sales and Use Tax Exemption Program, FY2017 – FY2020 (\$M)

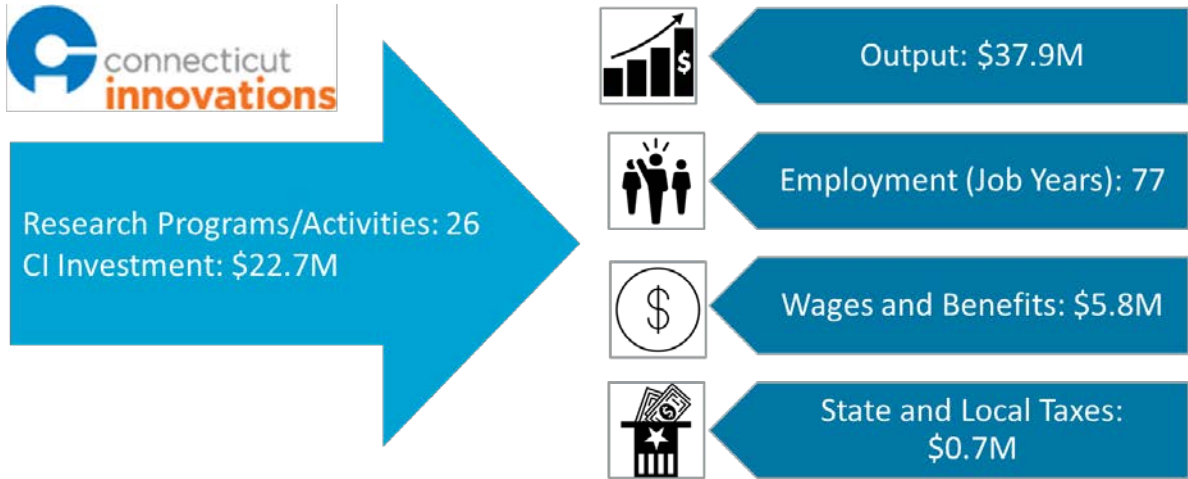
Impact Type	Employment (Job Years)	Labor Income	Value Added	Output	State & Local Tax Revenues	Federal Tax Revenues
Direct Effect	181	\$18.9	\$26.7	\$53.3	\$1.8	\$4.2
Indirect Effect	95	\$7.8	\$12.2	\$20.0	\$0.9	\$1.7
Induced Effect	123	\$7.9	\$13.8	\$21.7	\$1.5	\$1.8
Total Effect	399	\$34.6	\$52.8	\$94.9	\$4.1	\$7.8
Multiplier	2.21	1.83	1.97	1.78		

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2019 IMPLAN Connecticut statewide impact model.

Innovation Program (Connecticut Bioscience Investment Fund)

Many states lack sufficient deal flow to build a robust venture pipeline. Recognizing this issue, a fourth category of Connecticut Innovations’ programs focuses on supporting research commercialization activities at universities and other research institutions, the pipeline of start-up companies. 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 more 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: FY2017 – FY2020



As further detailed in Table 4, CBIF invested \$22.7 million in 26 companies between FY 2017 and FY 2020, which generated:

- 77 job years with wages and benefits totaling nearly \$5.6 million
- \$37.9 million of economic output, and
- Nearly \$750,000 of state and local tax revenue for the State of Connecticut.

Table 4: Economic Impacts from Connecticut Bioscience Investment Fund, FY2017 – FY2020 (\$M)

Impact Type	Employment (Job Years)	Labor Income	Value Added	Output	State & Local Tax Revenues	Federal Tax Revenues
Direct Effect	-	\$0.000	\$0.000	\$22.748	\$0.000	\$0.000
Indirect Effect	56	\$4.451	\$6.990	\$11.539	\$0.504	\$0.981
Induced Effect	21	\$1.309	\$2.301	\$3.604	\$0.242	\$0.306
Total Effect	77	\$5.760	\$9.291	\$37.891	\$0.746	\$1.287
Multiplier	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>1.67</i>		

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2019 IMPLAN Connecticut statewide impact model.

Economic Impact of Connecticut Innovations' Total Portfolio

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

Figure 5: Economic Impacts of Connecticut Innovations' Total Portfolio: FY 2017 – FY 2020



As further detailed in Table 5, Connecticut Innovations' portfolio of programs totaling \$228.7 million between FY 2017 and FY 2020 generated:

- 16,212 job years with wages and benefits totaling nearly \$1.9 billion
- \$4.6 billion of economic output, and
- \$200 million of state and local tax revenue for the State of Connecticut.

Table 5: Economic Impacts from Connecticut Innovations' Total Program Portfolio, FY 2017 – FY 2020 (\$M)

Impact Type	Employment (Job Years)	Labor Income	Value Added	Output	State & Local Tax Revenues	Federal Tax Revenues
Direct Effect	5,019	\$1,053.291	\$1,431.389	\$2,486.303	\$79.801	\$220.831
Indirect Effect	4,639	\$373.945	\$589.691	\$957.985	\$42.679	\$82.818
Induced Effect	6,554	\$419.597	\$737.736	\$1,152.952	\$77.633	\$98.223
Total Effect	16,212	\$1,846.832	\$2,758.817	\$4,597.240	\$200.114	\$401.872
Multiplier	3.23	1.75	1.93	1.85		

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2019 IMPLAN Connecticut statewide impact model.

Return on Investment of Connecticut Innovations' Investment Portfolio FY 2010 – FY 2020

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 a company is in. 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 2020 (\$M)

CI Program	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	\$277.87	\$99.11	\$178.77
Loan Program	\$142.62	\$82.07	\$60.55
Sales and Use Tax Exemption Program	\$53.28	N/A	\$53.28
CT Bioscience Investment Fund	\$34.24	N/A	\$34.24
Total CI Investments	\$508.01	\$181.27	\$326.84

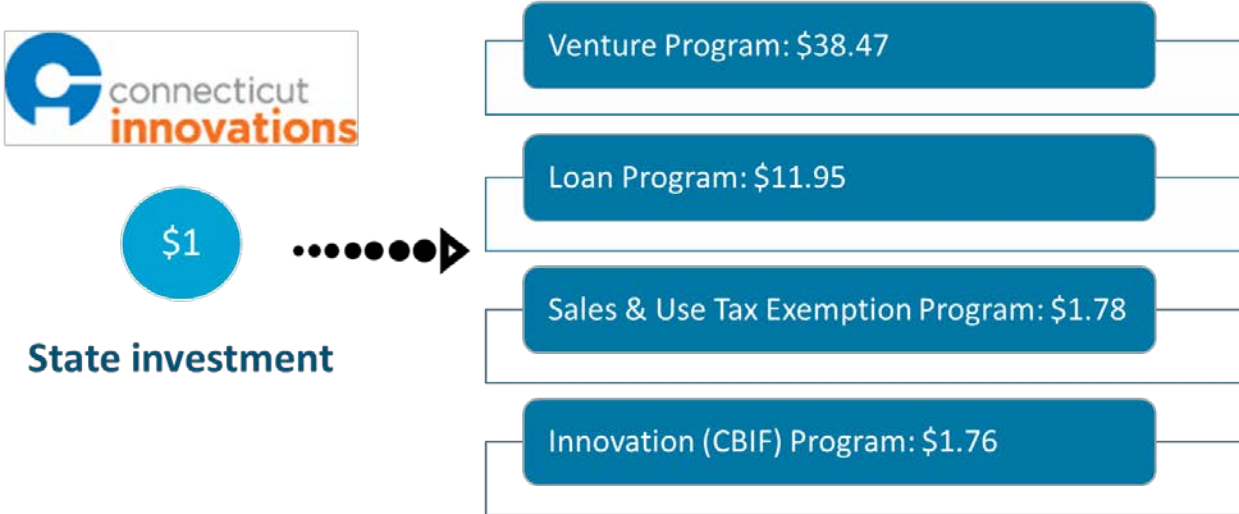
Source: Connecticut Innovations' program data and TEconomy Partners, LLC calculations.

Though the economic return on investment calculations is for the cumulative 2010-2020 fiscal years, they are still a single snapshot at the end of the period. It should be noted that 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 in the 2010-2020 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: 2010-2020

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 \$38.47 in total statewide economic activity through the direct spending of early-stage companies. Connecticut Innovations’ Loan Program fosters \$11.95 of state economic activity; the Sales and Use Tax Exemption Program generates \$1.78 in economic activity; and, the Innovation (CBIF) Program, which supports tech transfer and innovation ecosystem capacity building, generates \$1.76 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: 2010-2020



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

To better understand the ROI performance over the entire FY 2010 – FY 2020 period, Table 7 provides the economic activity ROI for the prior period examined (FY 2010 – FY 2016) and the cumulative results (FY 2010 – FY 2020). 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. The Sales and Use Tax Exemption Program was not assessed in the FY 2010 – FY 2016 period. Finally, the Innovation Program’s cumulative economic activity ROI shows a slight decline compared to the prior period. However, the prior period included a total of three investment programs, two of which are now outside the direct purview of Connecticut Innovations. Hence, the additional years (FY 2017 – FY 2020) only represent the economic activities of the CBIF program.

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

CI Program	Economic Activity Returns on Investment	
	FY 2010 – FY 2016	FY 2010 – FY 2020
Venture Program	\$21.99	\$38.47
Loan Program	\$7.91	\$11.95
Sales and Use Tax Exemption Program	N/A	\$1.78
Innovation Program (CBIF)	\$1.93	\$1.76
Total CI Program Investments	\$15.06	\$23.73

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

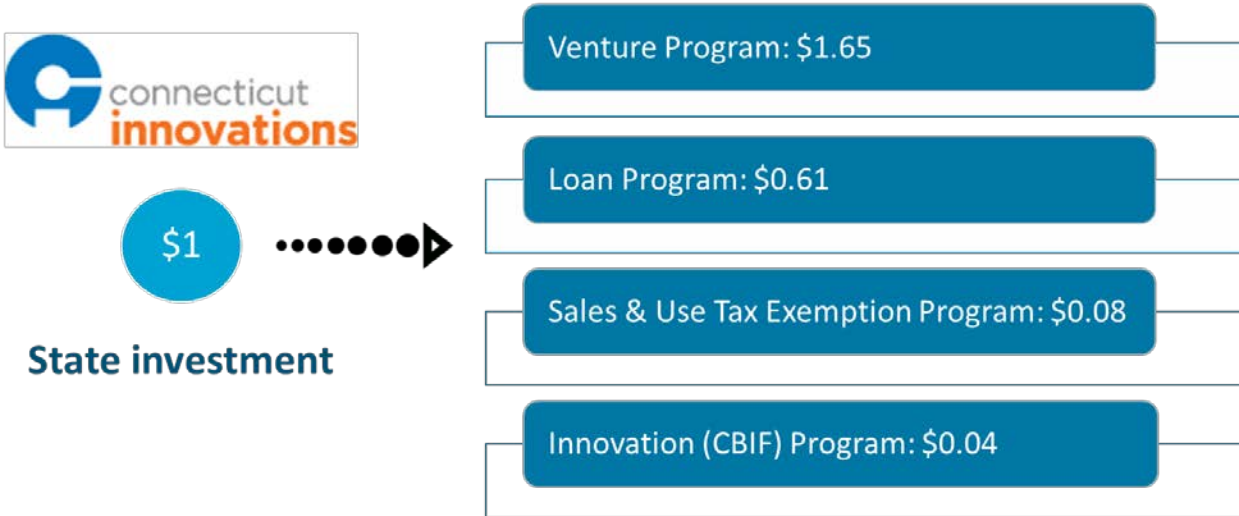
When aggregated, Connecticut Innovations’ total program portfolio generated an economic activity return of \$23.73 back to the State of Connecticut for every \$1 invested—a continued strong return to the state regardless of the programmatic benefits afforded by the investment.

Connecticut Innovations Tax Revenue Return on Investment: 2010-2020

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 \$1.65 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 \$0.61 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: 2010-2020



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

Similar to the Economic Activity ROI assessment, the comparative results between the FY 2010 – FY 2016 period and the cumulative FY 2010 – FY 2020 period show higher overall returns with the exception of the Innovation Program due to the changing mix of investment vehicles within the program (see Table 8).

Table 8: State & Local Tax ROI – Prior Period (FY 2010 – FY 2016) and Cumulative Period (FY 2010 – FY 2020)

CI Program	State & Local Tax Returns on Investment	
	FY 2010 – FY 2016	FY 2010 – FY 2020
Venture Program	\$0.91	\$1.65
Loan Program	\$0.40	\$0.61
Sales and Use Tax Exemption Program	N/A	\$0.08
Innovation Program (CBIF)	\$0.06	\$0.04
Total CI Program Investments	\$0.65	\$1.03

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 \$1.03 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 return over the last eleven 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 found that Connecticut Innovations' programs provided significant economic impact and a positive economic return on investment, and this updated study examining programmatic data through FY2020 further solidifies this finding. Given the significant economic return on investment generated by Connecticut Innovations' programs, TEconomy recommends the State of Connecticut continue to invest in these programs, while providing Connecticut Innovations with the flexibility to make programmatic adjustments as needed. 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 (AITC) 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 AITC when securing follow-on investments. In total, AITC-related investments exceeded Connecticut angels invested \$42.8 million in 76 companies between FY 2017 and FY 2020, garnering \$10.6 million in tax credits. (see Table A-1).

Table A-1: Connecticut's Angel Investment Tax Credits and Leveraged Investment, FY 2017-2020

Fiscal Year	State Angel Investment Tax Credit (\$M)	Follow-on Investment (\$M) (private, federal, other)
2017	\$2.999	\$11.995
2018	\$1.716	\$6.865
2019	\$3.298	\$13.192
2020	\$2.627	\$10.738
Cumulative Total, 2017-2020	\$10.640	\$42.791

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: FY2017 – FY2020



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

- 1,600 jobs with wages and benefits totaling more than \$142 million
- \$412.3 million of economic output, and
- Nearly \$17 million of state and local tax revenue for the State of Connecticut.

Table A-2: Economic Impacts from Angel Investment Tax Credit Program, FY2017 – FY2020 (\$ in millions)

Impact Type	Employment (Job Years)	Labor Income	Value Added	Output	State & Local Tax Revenues	Federal Tax Revenues
Direct Effect	674	\$75.505	\$125.532	\$235.787	\$6.603	\$16.941
Indirect Effect	421	\$34.290	\$53.629	\$87.655	\$4.087	\$7.603
Induced Effect	505	\$32.293	\$56.790	\$88.863	\$5.979	\$7.560
Total Effect	1,600	\$142.087	\$235.951	\$412.305	\$16.669	\$32.104
Multiplier	2.37	1.88	1.88	1.75		

Source: Data from Connecticut Innovations and TEconomy Partners, LLC estimates and calculations using 2019 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.

Fiscal Year	CI Program	CI Investment (\$M) (Direct or Tax Credit/Exemption)	Follow-on Investment (\$M) (private, federal, other)	Total Investment (\$M)	Leveraging Ratio
2017	Venture	\$33.150	\$369.657	\$402.807	1.00 : 11.15
	Loans	\$7.906	\$2.618	\$12.324	1.00 : 0.33
	Sales Tax Exemption	\$1.800	\$-	\$1.800	-
	CBIF	\$5.007	\$-	\$5.007	-
	Total	\$47.863	\$372.275	\$421.938	1.00 : 7.78
2018	Venture	\$34.187	\$149.606	\$183.793	1.00 : 4.38
	Loans	\$3.430	\$1.163	\$15.726	1.00 : 0.34
	Sales Tax Exemption	\$11.134	\$-	\$11.134	-
	CBIF	\$6.380	\$-	\$6.380	-
	Total	\$55.131	\$150.768	\$217.034	1.00 : 2.73
2019	Venture	\$30.825	\$360.944	\$391.768	1.00 : 11.71
	Loans	\$3.800	\$1.013	\$37.812	1.00 : 0.27
	Sales Tax Exemption	\$33.000	\$-	\$33.000	-
	CBIF	\$8.061	\$-	\$8.061	-
	Total	\$75.685	\$361.956	\$470.641	1.00 : 4.78
2020	Venture	\$39.252	\$433.101	\$472.353	1.00 : 11.03
	Loans	\$0.163	\$-	\$7.513	-
	Sales Tax Exemption	\$7.350	\$-	\$7.350	-
	CBIF	\$3.300	\$-	\$3.300	-
	Total	\$50.065	\$433.101	\$490.516	1.00 : 8.65
Cumulative Total, 2017-2020	Venture	\$137.414	\$1,313.307	\$1,450.721	1.00 : 9.56
	Loans	\$15.298	\$4.793	\$73.375	1.00 : 0.31
	Sales Tax Exemption	\$53.284	\$-	\$53.284	-
	CBIF	\$22.748	\$-	\$22.748	-
	Total	\$228.744	\$1,318.100	\$1,600.128	1.00 : 5.76

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