THE IMPACT OF MISSOURI TECHNOLOGY CORPORATION FUNDING

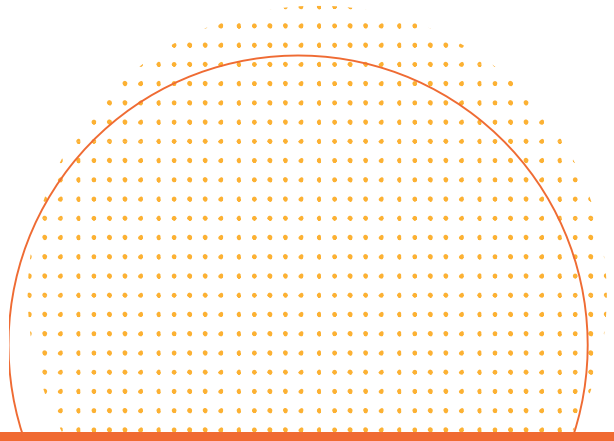
2012—2019

INTRODUCTION

Entrepreneurial growth has been proven to be a key component of community job growth and economic vitality. Adequate funding at a firm's very early stages fuels entrepreneurial growth, but the market typically does not invest in these pre-seed, high-risk companies who are generally looking to develop a minimal viable product. State governments have begun to "plug a hole" in the marketplace by funding these early-stage companies.[1] The advent of the State Small Business Credit Initiative, part of the Small Business Jobs Act of 2010, helped created venture capital programs in 30 states.[2] These states have stepped into this void and created venture capital programs to invest in early-stage companies. Limited data exists to measure the effectiveness of those investments.

Through the Ewing Marion Kauffman Foundation Zero Barriers grant program, the University of Missouri – Kansas City Innovation Center (UMKCIC) embarked on a research project designed to inform local, state and federal policy makers as they consider starting or expanding public investment programs in early-stage entrepreneurial firms. Entrepreneurs would benefit if the study shows a meaningful impact of these investment programs. The ultimate beneficiaries would be communities as growing entrepreneurial firms create jobs and add to the economic health of the region.

The project is also part of a University Center Program grant from the U.S. Department of Commerce Economic Development Administration to UMKCIC. Over the past five years, the UCP found that very early-stage investment is difficult to access and that states and other localities have created investment funds to support very early-stage business development. **Determining the efficacy of public early-stage investment funds** can assist policy makers in determining how early-stage capital investment can be used to develop a pipeline of growth companies and realize economic impact. Determining the effectiveness of these funding mechanisms is essential to setting policy that supports young companies.



THE STUDY WAS INTENDED TO ADDRESS TWO IMPORTANT QUESTIONS:

Does public funding of private entrepreneurial startups generate uniquely positive economic outcomes?

Would those same startups that received public funding have performed similarly without it?

OVERVIEW

The Missouri Technology Corporation (MTC) is a public-private partnership created by the Missouri General Assembly to promote entrepreneurship and foster the growth of new and emerging high-tech companies. MTC focuses on the life sciences and technology industries, and builds on Missouri's rich history in agriculture. MTC provides two early-stage investment vehicles:

- **The Missouri TechLaunch** program was created in order to support early-stage, Missouri entrepreneurs to develop technologies, build businesses and create jobs across Missouri. TechLaunch supports life science and technology startups through matching equity or convertible debt investments up to $100,000 for the purpose of technology and business development.

- **The Missouri SEED Capital Co-Investment** program was created in order to support early-stage, Missouri entrepreneurs to develop technologies, create jobs across Missouri and position companies for venture capital investment. The SEED fund supports technology startups through matching equity or convertible debt investments up to $500,000 for the purpose of technology and business development.

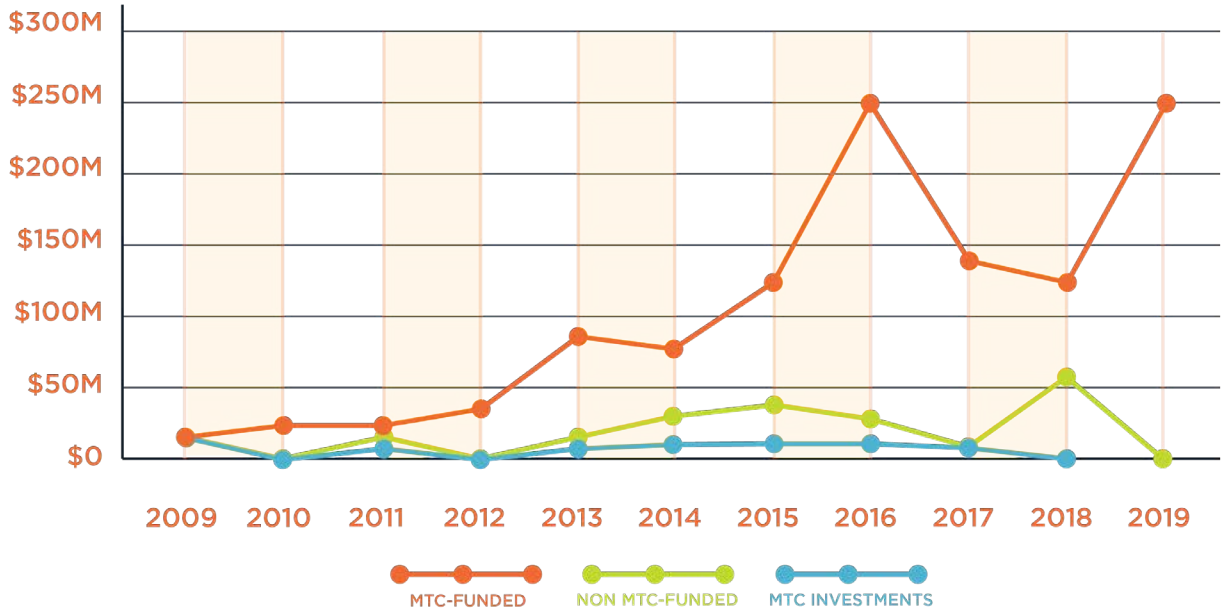
1. Nichols, Russell, State Governments: The Latest Venture Capitalists, Governing, March 2011. https://www.governing.com/State-Governments-Latest-Venture-Capitalists.html

2. Cromwell, Eric and Schmisseur, Dan, 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 (SSBCI, February 2013.

UMKCIC compared companies that were funded by the Missouri Technology Corporation (MTC) with those companies that applied but were not funded. Utilizing CBInsights capital data from 2009 through the first quarter of 2019, it was found that over the last decade, those companies that received MTC funding substantially outraised follow-on financing than those companies that applied but did not receive MTC funding.

In addition, more than twice as many MTC-funded companies raised additional investment than non MTC-funded companies. Of the MTC-funded companies, 77 of the 136 surfaced in CBInsights as having raised capital above and beyond the amount they received from MTC. Of the non MTC-funded companies, 36 of the 204 appeared in the database as having raised capital.

Figure 1: Outside/Follow on Funding



Most entrepreneurial ecosystem models include capital as a key pillar, with the amount of venture capital raised by companies as an indicator of the economic vitality of the communities in which they are located. The performance of MTC-funded companies vs. non MTC-funded companies in raising follow on funds supports the premise that early-stage funding leads to later-stage investment. One of the concerns raised about government support for early-stage companies centers on the notion that public sector organizations do not do as good a job "picking winners" as the private sector. This data suggests that the MTC review team has performed well in selecting companies for funding. Another concept worth considering is a possible "certification effect" whereby receipt of MTC funds serves as a positive signal to potential future investors. Likewise the MTC funds could help those companies that received the funds achieve market penetration which then aided in their attractiveness to potential new investors. Given data limitations, it's difficult to tease out the extent to which MTC chose wisely versus provided advantages.

Second, utilizing Quarterly Census of Employment and Wages (QCEW) data from 2010 through 2017, UMKCIC looked at both percentage change in employment as well as total annual employment over the last seven years for both sets of companies. The percentage change in total employment shows MTC-funded companies outperforming non MTC-funded companies. This result would be expected given that additional investment (as seen in the first chart) is typically used for new hires – staff in development, sales, customer support – as well as inventory, legal expenses, product manufacturing, etc. [3]

Figure 2: Percent Change in Total Employment

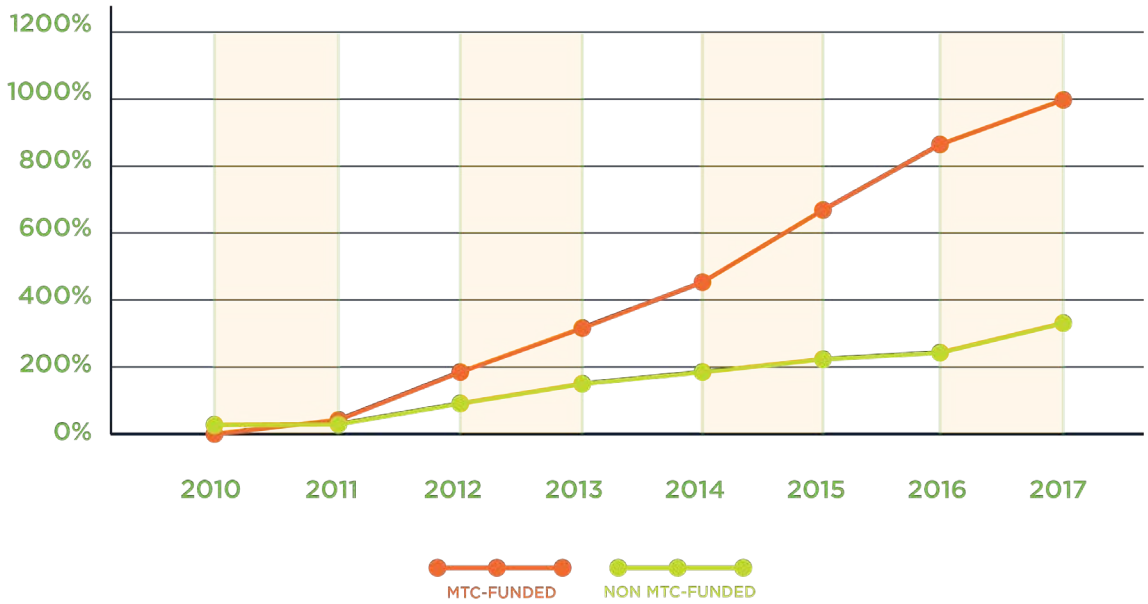
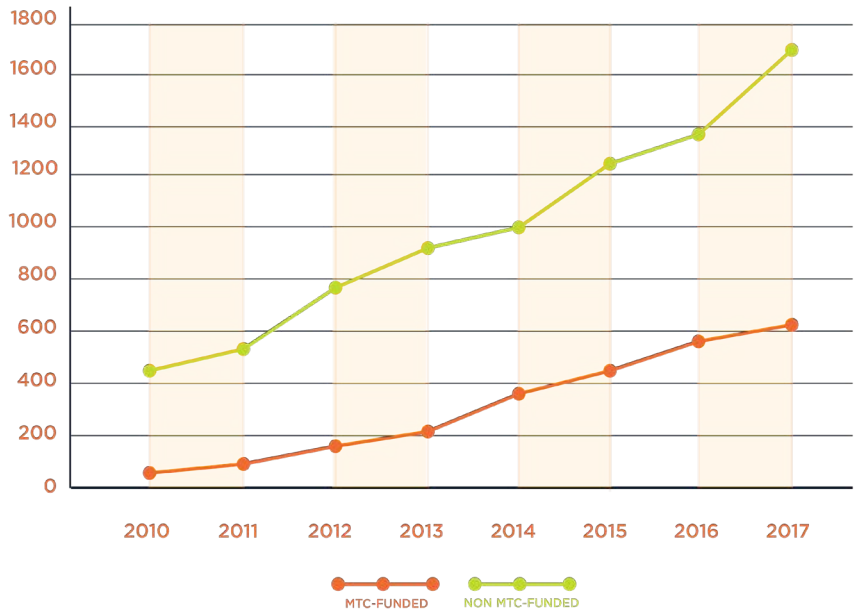


Figure 3: Total Annual Employment

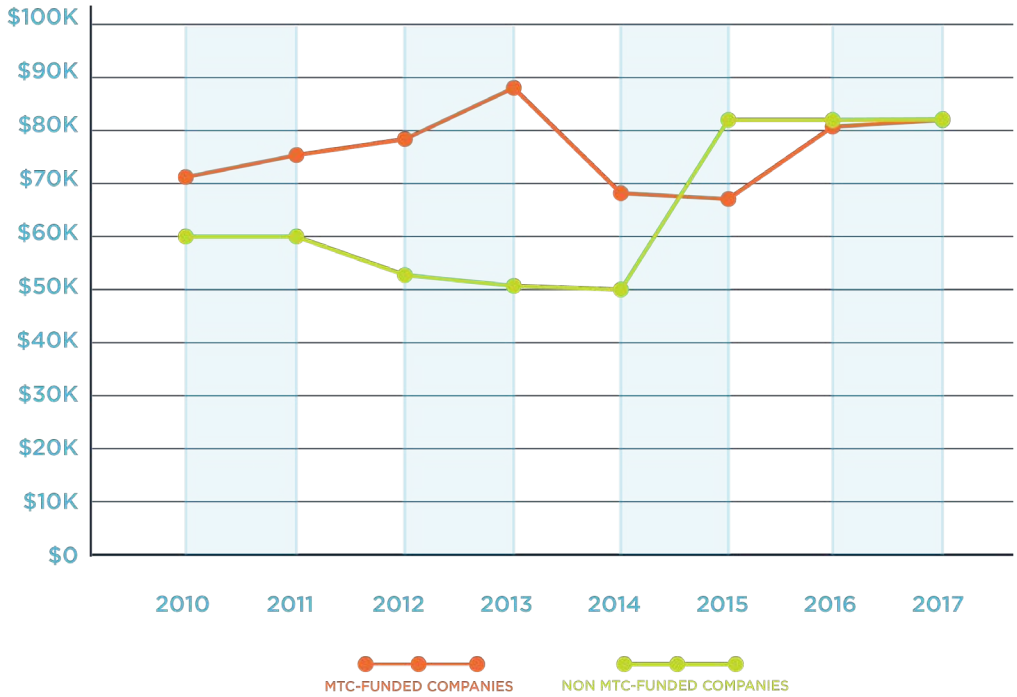


When total annual employment is compared, the non MTC-funded companies as a cohort begin in 2010 with and continue to have higher numbers of employees than MTC-funded companies through 2017. This may be explained by the fact that MTC typically funds very small companies in the earliest stages of development that have very few employees. As those small companies grow, their percentage change in employment will be more significant than a larger company that adds the same number of employees. It is possible that some of the companies that were not funded by MTC were too large to begin with (past the stage at which MTC typically invests) and already had some number of employees. Therefore, their annual employee totals would be higher than MTC-funded companies.

3. Investopedia. https://www.investopedia.com/terms/s/startup-capital.asp

Finally, again utilizing Quarterly Census of Employment and Wages (QCEW) data from 2010 through 2017, UMKCIC finds that the annual average wage of the MTC-funded companies is higher during the beginning of the last decade, with the average wage of the non MTC-funded companies rising above the MTC-funded companies from 2014 to 2015 onward.

Figure 4: Annual Average Wage



From a research standpoint, the average wage fluctuation of as much as $20,000 year to year suggests a small, mixed dataset. The data includes sole proprietorships and large companies, as well as a wide variety of job types. Over a large dataset these differences might not matter, but in a small dataset it may drive the large fluctuations. The typical births and deaths of companies can have large effects on the average wage in a small dataset. It is also possible that the data reflects an improvement in the overall pool of applications. For instance, the clear gap in wages paid for MTC-funded vs. non MTC-funded companies from 2010 to 2014 may reflect a significant difference in the quality of the companies.

METHODOLOGY

CAPITAL

In order to determine the capital raised by companies funded by MTC and companies that applied for and did not receive funding from MTC, we utilized a dataset provided by MTC that included 136 funded companies and 204 non-funded companies. CBInsights provided the capital data for 113 of these companies for the years 2009 through the first quarter of 2019.

EMPLOYMENT AND WAGES

In order to determine the percentage change in employment, the total annual employment and the annual average wage by companies funded by MTC and companies that applied for and did not receive funding from MTC, the Quarterly Census of Employment and Wages for the state of Missouri for the years 2010 through 2017 was utilized.

Of the funded companies, 94 of the 136 appeared in the QCEW dataset. Of the non-funded companies, 78 of the 204 were present. Total Annual Employment was calculated summing the quarterly employment numbers according to MTC-funded and non MTC-funded. These numbers were then annualized by averaging the quarterly totals for each year. The percentage change in employment was then calculated by using the 2010 numbers as a base or reference year: [(Current Year – Base Year)/(Base Year)]*100 = percentage change since the base year.

The Annual Average Wage was determined by taking the quarterly total wage bill paid by each company divided by that company's quarterly average employment number. This generated an average wage, per company, per quarter. Then, aggregating MTC-funded companies together and non MTC-funded companies together, the individual company quarterly average wage was averaged across all companies in each group. This generated a quarterly average wage for both groups. Both were then annualized to create the graph.

CONCLUSION

Based on the results of this research project, it appears that state-sponsored equity funding from MTC has a positive benefit for those companies that received funding, and the MTC-funded companies outperformed the non MTC-funded companies in terms of additional venture capital raised and percent change in employment. Also, MTC-funded companies initially offered higher wages than non MTC-funded companies.

These findings are consistent with data from the Ben Franklin Technology Partners, a state-funded economic development initiative since 1983. The 2018 Impact Report[4] from BFTP showed that their clients also paid higher average wages than non clients. BFTP clients secured more than $635 million in follow on funding, but no comparison with non clients was offered.

Initially MTC provided a total of 340 companies for this study. We were able to find employment and wage data for only 172 and capital data for only 113. A larger dataset would allow for further exploration of the impact of MTC funding on early-stage startup companies in Missouri.

This report was prepared by Maria Meyers, Kate Pope Hodel and Jon Krajack of the University of Missouri - Kansas City Innovation Center. Special thanks to University of Missouri - Kansas City professors Mark Parry and Brian Anderson for the input.

4. 2018 Impact Report. Ben Franklin Technology Partners. 2019. https://benfranklin.org/reports/