

Evaluation of the Minnesota Angel Tax Credit Program: 2010-2012

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EXECUTIVE SUMMARY

Minnesota's Small Business Investment Tax Credit ("Angel Tax Credit" or ATC) was enacted into law on April 1, 2010, and launched by the Department of Employment and Economic Development in July. The program was designed to encourage equity investments in early stage, technology based businesses by reducing the risk of investment through the issuance of tax credits to Qualified Investors (i.e., Angels) for investments in Qualified Small Businesses (QSBs). In 2010, just over \$7 million in credits were issued; in 2011, \$15.8 million were issued; and in 2012, \$11.4 million were issued, for a total of \$34.2 million. These tax credits were linked to \$28 million of Qualified Investment in 2010, \$63.5 million in 2011, and \$47.2 million in 2012, for a three-year total of \$138.6 million. The following outcomes and impacts resulted from the credits:

Attributable & Leveraged Investment

Angel investment attributable to the ATC includes only the portion that would not have been invested in the absence of the credits. It excludes investment that would have occurred anyway or was simply shifted from other angel investment opportunities in Minnesota.

- Among Qualified Investors who made an investment during one of the program's first three years,
 - nearly half (48%) reported that they would not have made their qualifying investments had the ATC not existed;
 - almost one-third (34%) said they would have made a smaller investment from 2010-2012; and
 - 18 percent said they would have made the same (or full) investment from 2010-2012.

In total, the ATC expanded Minnesota angel investment for over three-quarters of participating investors.

- It is estimated that \$71.7 million in angel investment (52 percent of the total) is attributable to the ATC, i.e., would not have been invested in the targeted businesses during the program's first three years had the tax credit not existed. This \$71.7 million included an estimated
 - \$8.8 million of angel investment in Greater Minnesota businesses,
 - \$616,000 in minority-owned businesses, and
 - \$54.2 million in the five most common industry types by QSB (biotech, clean tech, IT services, medical devices & equipment, software).

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With the investment received through the ATC program, some QSBs said they were able to leverage additional debt or equity investment that would not have been available to them otherwise.

- Manufacturing QSBs leveraged an estimated \$5.7 million in additional debt capital and \$6.1 million in additional equity capital from 2010-2012 that would not have been available without the ATC program.
- Non-manufacturing QSBs leveraged an estimated \$8.8 million in additional debt capital and \$14.3 million in additional equity capital from 2010-2012 that would not have been available without the ATC program.
- Many businesses leveraged no investment with the ATC, however, and the leveraged investment was concentrated in a few firms.

In summary, \$34.2 million worth of ATCs were issued from 2010-2012, which resulted in a net increase of \$71.7 million in new Minnesota angel investment—\$34.2 million from the state and another \$37.4 million from the angel investors. The ATC program also catalyzed an additional \$34.9 million in leveraged financing, meaning that each dollar of credit is matched by \$1.09 in new angel investment and \$1.02 in new leveraged investment.

Impacts on Investor Behavior

Investors revealed ways in which program participation affected their behavior:

- Some investors delayed their investment in a QSB when the ATC appropriation was exhausted before year-end. In these cases, investors planning to invest in a QSB chose to delay their investment several months or longer so they could benefit from the subsequent year's tax credit allocation.
- Investors made approximately \$618,000 in non-qualifying investment from 2010-2012 (i.e., not eligible for ATCs), either in Minnesota or out-of-state, that was a direct outgrowth of their participation in the ATC program. This represents only 1.7 percent of all non-qualifying investment made from 2010-2012, however.

Participation in the ATC program also exposed some investors to new investment opportunities in Minnesota. Among Qualified Investors responding to the survey,

- 68 percent reported that the program increased their awareness of investment opportunities within the Twin Cities Metro area;
- 29 percent reported an increased awareness of investment opportunities in Greater Minnesota;
- 14 percent and 12 percent cited increased awareness of investment opportunities in women- and minority-owned businesses, respectively; and
- over half (52%) reported increased awareness of new technologies and industries. The most common industry groups cited were biotech/healthcare/medical devices (57%) and information/communications (17%).

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Also, forty percent of survey respondents indicated that they were a founder, executive, principal, or board member in the QSB in which they invested, while another 10 percent were immediate family members of someone who is. Investments made by these “inside investors” collectively account for nearly 42 percent of the total Qualified Investment made by surveyed investors.

Economic & Fiscal Impacts

Investment attributable to the ATC program supports hiring and spending by QSBs themselves, and it also indirectly supports the growth of other Minnesota businesses through economic multiplier effects.

- In years 2010-2012, attributable QSB activity resulted in an average of 512 Minnesota jobs (98 direct and 414 indirect and induced, i.e., through economic multipliers).
- Over these three years (2010-2012), direct, indirect, and induced employment was associated with
 - \$243.1 million in business sales (output);
 - \$140.8 million in value added;
 - \$70.9 million in labor income (all in fixed 2012 dollars); and
 - an additional 114 Minnesota residents.
- When forecasted out to 2020, the impact over the next eight years (2013-2020) is
 - an average of 635 Minnesota jobs (215 direct and 420 indirect and induced);
 - \$1.2 billion in additional business sales (output);
 - \$704.2 million in additional value added;
 - \$380.2 million in additional labor income (all in fixed 2012 dollars); and
 - an additional 543 Minnesota residents.
- Over the 11 years (2010-2020), attributable QSB activity is estimated to increase state revenue by \$48.7 million and increase state expenditures by \$24.9 million (in fixed 2012 dollars).
- From a state budget standpoint, most of the program’s benefits will occur *after* its first three years while most of its costs occurred *during* its first three years. It is estimated that the program will not pay for itself within ten years, with the state earning \$0.61 for every \$1.00 it foregoes from 2010-2020, however,
 - the model used to generate this result fails to capture up to \$8.1 million in estimated revenue from income earned on Qualified Investments. If that is all included, the program is slightly more cost effective over ten years, with a benefit of \$0.78 on the dollar; and

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- while the ATC program is not projected to pay for itself within ten years, extending the analysis beyond ten years leaves open the possibility that it eventually could.

Alternate Use

The impact of two alternate uses of ATC funds was considered.

- If the \$34.2 million issued as ATCs in the first three years (2010-2012) had instead been used to increase the R&D tax credit, and if the same degree of leveraging was expected to occur, the impacts over those same three years would have included
 - an average of between 99 and 116 jobs (a range based on the mix of industries claiming the R&D tax credit in 2010 and 2012);
 - \$49.4-52.2 million in additional business sales (output);
 - \$28.1-30.9 million in additional value added;
 - \$16.5-19 million in additional labor income;
 - \$1.8-1.9 million in added state revenue and \$2.1-3.2 million in reduced state expenditures, for a net budget impact of \$4-4.9 million (in fixed 2012 dollars); and
 - an additional 56-60 Minnesota residents.
- If the \$34.2 million had instead been used to reduce corporate tax rates, the impact would likely be smaller than from using those funds to increase the R&D credit.
- In summary, 2010-2012 economic and fiscal impacts of the ATC program are noticeably higher than what would likely have occurred had the state used the same resources to increase the R&D tax credit or reduce corporate tax rates.

1 INTRODUCTION

Overview of ATC Program

Minnesota's Small Business Investment Tax Credit ("Angel Tax Credit" or ATC) was enacted into law on April 1, 2010, and launched by the Department of Employment and Economic Development (DEED) in July 2010. The program was designed to encourage equity investments in early stage, technology based businesses by raising the return and reducing the risk of investing through the issuance of tax credits to Qualified Investors (i.e., Angels) for investments in Qualified Small Businesses (QSB). An Angel Tax Credit represents a dollar-for-dollar reduction in an investor's Minnesota tax liability, and is not limited by the amount of that liability (i.e., credits are refundable). Qualified Investors receive a 25 percent refundable tax credit for investments in QSBs, and are subject to annual maximum investments of \$500,000 per person (equaling \$125,000 in credits) or \$1 million (equaling \$250,000 in credits) if married and filing jointly. Qualified Investors are not subject to a lifetime maximum of Angel Credits, but QSBs are subject to a lifetime maximum of \$4 million in Qualified Investment.¹

The Minnesota Legislature originally appropriated \$11 million in funding for Angel Credits for the program's first year (2010) and \$12 million each for the years from 2011-2014. In 2010, just over \$7 million worth of credits was issued, allowing nearly \$4 million in credits to roll over. In 2011, \$15.8 million worth of credits was issued (representing 99 percent of available credits) and in 2012, \$11.4 million worth of credits was issued.²

Purpose and Scope of Evaluation

According to the Angel Capital Association, 26 states including Minnesota currently have some form of tax credit for angel investors.³ Proponents of Angel Tax Credits believe they attract new investors and investment that would not have occurred otherwise, and may justify the displacement of existing investment if the angel investment fosters high-growth enterprises and increased economic growth through innovation. Detractors generally argue that the benefits of the credits do not justify the lost revenue to issuing

¹ *Minnesota's Angel Tax Credit*, 2011, Minnesota Department of Employment and Economic Development and Larkin Hoffman Daly & Lindgren Ltd.

² *Minnesota Angel Tax Credit Program 2012 Annual Report*, March 15, 2013, Minnesota Department of Employment and Economic Development, http://mn.gov/deed/images/Angel_Tax_Credit_Program.pdf.

³ See <http://www.angelcapitalassociation.org/aca-public-policy-state-program-details/>.

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governments.⁴ Among Minnesota's neighboring states, North Dakota and Wisconsin both offer tax credits for angel investments (enacted in 1992 and 2003, respectively). While not a neighboring state, Illinois also offers an angel investment tax credit (enacted in 2007), and Minnesota's program is modeled closely after the programs in Illinois and Wisconsin.⁵

Funding for Minnesota's ATC program continues through the end of 2014, after which the state will stop offering Angel Credits (unless the Legislature passes an additional appropriation). To inform deliberations concerning the future of the ATC program, the Legislature passed a statutory requirement for this evaluation of the program's first three years (see Appendix A for legislative language). In compliance with the requirement, this evaluation includes an objective analysis of:

1. The effect of the credit on the level of equity investment in qualified small businesses in Minnesota, reflecting the investments made by angel investors, venture capital firms, and other sources of equity capital for startup businesses;
2. The effect of the credit, if any, on investment in firms other than qualified small businesses;
3. The amount of economic activity in Minnesota, including the number of jobs and the wages of those jobs, generated by qualified small businesses that received investments that qualified for the credit; and
4. The incremental change in Minnesota state and local taxes paid as a result of the allowance of the credit;
5. The net benefit to the Minnesota economy of allowance of the credit relative to alternative uses of the resources, such as increasing the research and development credit or reducing the corporate franchise tax rate.

While not required in the program's authorizing legislation, this evaluation also includes an analysis of:

⁴ See David Weaver and Jeff Cornwall, "Should Angel Investors Get Tax Credits to Invest in Small Businesses?," *The Wall Street Journal*, March 19, 2012, accessed June 19, 2013, <http://online.wsj.com/article/SB10001424052702304459804577283420497271022.html>, for a brief debate on the efficacy of tax credits for angel investors. A growing emphasis on innovation is embodied in the Obama Administration's *Strategy for American Innovation* (described at <http://www.whitehouse.gov/innovation/strategy>) and the Brookings Institution's Growth through Innovation research initiative (described at <http://www.brookings.edu/research/topics/growth-through-innovation>). The theoretical argument for investing in start-ups as a way to increase wage growth is most recently summarized in *Mass Flourishing* by Nobel laureate Edmund S. Phelps (Princeton University Press, 2013).

⁵ See <http://www.angelcapitalassociation.org/data/NK1.pdf> or <http://www.legis.nd.gov/assembly/sessionlaws/1993/pdf/TAXES.pdf> for North Dakota's authorizing legislation, <https://docs.legis.wisconsin.gov/2003/related/acts/255> for Wisconsin's, and <http://www.commerce.state.il.us/NR/ronlyres/426C3D72-9803-45D2-A582-BFB6100EE8A4/0/AngelInvestmentPublicAct0971097.pdf> for Illinois's.

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6. The reasons for any disparity in the number of qualified small businesses and the amount of investment in those businesses in the 7-county Twin Cities Metro area versus Greater Minnesota. Also, to the extent information is available, information on participation by women- and minority-owned businesses.

2 STUDY METHODOLOGY

A combination of ATC program data, surveys, and interviews is used to provide the information needed for this evaluation. Program data provide baseline information on Qualified Investor and QSB activity. Survey results are used to assess program attribution: both (a) the extent to which investments in firms would not have occurred without the ATC and (b) whether any additional capital raised by firms and their self-reported growth was dependent on the ATC. Survey results also provide data on the subsequent economic impacts at recipient Qualified Small Businesses and information on qualitative impacts of the ATC on investors, such as knowledge of investment opportunities and investors' non-financial roles in QSBs. Interviews with angel investors, entrepreneurs, and business development experts also inform the qualitative analysis of program impacts.

Attributable, self-reported increases in employment and spending among recipient QSBs are used to estimate total impacts on job creation, gross state product, and tax revenues in Minnesota using the Department of Employment and Economic Development's economic impact model built by Regional Economic Models, Inc. (REMI).⁶ Total increases in state revenue, net of increased expenditures, are compared with ATCs issued to determine the overall cost effectiveness of the program, and additional analysis explores how total impacts attributable to the ATC compare with the estimated impact of an equal sized increase in the research and development tax credit. Finally, a separate analysis using economic data and key informant interviews is used to identify factors contributing to investment disparities between the Twin Cities Metro area and Greater Minnesota, and how these disparities might be reduced.

Given the survey's importance to the overall evaluation, a detailed description of survey methods, response rates, and representativeness follows, along with its potential limitations. Additional details on other evaluation methods are provided within the corresponding sections on investment impacts, economic impacts, tax revenue impacts, and investment disparities.

Survey Methodology & Limitations

This evaluation is based largely on the results of responses to surveys sent to those who participated in the ATC program during its first three years. Every Qualified Investor,

⁶ Minnesota has a history using the REMI model, which was developed in the 1980s by regional Economic Models, Inc., a company based in Amherst, Massachusetts. Minnesota's REMI license includes a two-region model of the state economy: the first describes a seven-county aggregate economy around the Twin Cities and the second describes "Greater Minnesota." See <http://www.remi.com/> for more information on the REMI model.

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Qualified Fund, and Qualified Small Business received a survey as part of this evaluation.⁷ Three different surveys were designed to target individual investors, investment funds, and recipient Qualified Small Businesses (i.e., those receiving an ATC investment). A fourth survey was designed and implemented for those businesses qualifying for the program but yet to receive an investment (referred to as “non-recipient QSBs”).⁸

Surveys asked investors and businesses how the ATC changed their behavior: investors were asked how it changed their investment behavior and businesses were asked how capital received from participating angel investors affected their business decisions and access to other sources of financing. Surveys were carefully designed to obtain meaningful results; overall response rates were quite high; and, based on characteristics that could be identified for both groups, the survey respondents were very similar to the full population. Nevertheless, the use of surveys has several important limitations related to the presence of bias:

- **Response bias** could have occurred when asking (potential) beneficiaries of the ATC program to describe how it affected their behavior, particularly if they hope to benefit from the program in future years and know their responses may affect decisions to extend the life of the program. This form of cognitive bias is best addressed by carefully wording questions about behavior and supplementing findings with secondary, non-survey-based information.
- **Non-response bias** could have occurred if survey respondents differed from (or were not representative of) the full population of investors and businesses being studied. Even if survey respondents are similar in many ways, they may not be representative in their answers to key questions (i.e., those who responded may differ in significant ways from those who chose not to respond). Also, despite high response rates, in some cases results are greatly affected by a very small number of respondents because not all respondents answered all questions. Non-response bias is *not* a cognitive form of bias, and is therefore addressed by maximizing response rates and, in some cases, supplementing findings with secondary, non-survey-based information.

⁷ While our analysis of investment levels considers only those investments made during the first three years of the program (2010-2012), the full population of program participants, including businesses and investors receiving or making investments in 2013, was surveyed in order to maximize response rates. It is important to note that two respondents to the business survey *received* their first investment in 2013, and 25 respondents to the investor survey and three respondents to the investment fund survey *made* their first investment in 2013; while these respondents are included in our assessment of survey representativeness and qualitative discussion of the program’s effectiveness, they are not included in analyses of the 2010-2012 period.

⁸ All surveys were created using the online SurveyMonkey™ service and disseminated through an e-mail hyperlink. PDF surveys were also disseminated for those respondents unable or uncomfortable completing them online. Copies of each survey are available in Appendix B.

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Great care was taken in survey design to address both types of bias, but some readers will still be skeptical of the results. In instances where reliance on survey responses might have led to over- or under-estimation of the program's actual impact, the potential for such variance and the sensitivity of certain results is discussed. Arguments for the accuracy of survey responses themselves are also provided in some cases, as we believe that carefully designed surveys were the best method to use in evaluating the ATC program.

Challenges inherent in evaluating economic development programs are well-documented and, with a growing emphasis on job creation at the state and federal levels, have remained a topic of much interest.⁹ Specifically, difficulties arise when attempting to isolate the impacts and outcomes of the ATC program (e.g., change in investment), especially because so much about the Minnesota and U.S. economy was changing during the program's first three years. The economy was emerging from a major recession, for instance, and angel investment activity varies greatly from year to year for other reasons as well.

Other states were also changing their tax structures at the same time that Minnesota's ATC program was launched, potentially influencing the behavior of angel investors. There is no obvious way to control for all the other factors affecting how total investment, venture capital investment, and investment in emergent technology were changing in Minnesota from 2010-2012. Estimates based on simple comparisons with earlier years—or comparisons across states—are unlikely to capture the impact of this relatively small program. Other approaches, such as identifying "control groups" of investors or firms, were not feasible. Although surveys of participants seem to be the best approach to this evaluation, the limitations of this methodology are recognized and addressed throughout this report.

2.1.1 Survey Response Rates & Representativeness

Across all four surveys, the total response rate was 26 percent, with QSBs responding at the highest rate and non-recipient QSBs responding at the lowest rate (see Table 2.1). For the critical attribution analysis, this evaluation relies most heavily on responses to the Qualified Investor and QSB surveys. For questions receiving a full response, the margin of error for these two surveys is 4.5 percent and 10.4 percent, respectively.¹⁰

⁹ For a recent illustration of the difficulties in isolating and verifying the impacts and outcomes of a federal tax credit program, see Section III of the Urban Institute's *New Markets Tax Credit (NMTC) Program Evaluation: Final Report*, April 2013, <http://www.urban.org/UploadedPDF/412958-new-markets-tax-final.pdf>.

¹⁰ At a 95 percent level of confidence

Table 2.1. Survey Response Rates

	Total Responses (Sample)	Full Population*	Response Rate	Margin of Error (95% confidence)
Qualified Investor Survey	349	1,305	27%	4.5%
Qualified Fund Survey	10	42	24%	27.4%
QSB Survey	63	216	29%	10.4%
Non-Recipient QSB Survey	19	149	13%	21.1%
Total	441	1,712	26%	-

*Refers to firm counts for the QSB and non-recipient QSB rows of the table.

Businesses responding to the survey are geographically representative of the full population of Qualified Small Businesses if not slightly skewed toward those headquartered in Greater Minnesota (i.e., outside the Twin Cities Metro area). Among all QSBs receiving investments since the program’s inception, 93 percent are located in the Twin Cities Metro area¹¹; among QSBs responding to the survey, 89 percent are located in the Twin Cities region. Businesses that have never received an investment through the ATC program but did respond to the survey are also geographically representative of the full population. Among all non-recipient QSBs *and* those responding to the survey, 89 percent are located in the Twin Cities Metro area.

When considering how total Qualified Investment (QI) is distributed geographically and by type of business, the pattern of investment among survey respondents is again very similar to that among the full population. These investment patterns are compared in Table 2.2. Of the total investment made since the program’s inception, businesses located in the Twin Cities Metro area have received 89 percent; of the total investment captured through the survey of Qualified Investors, businesses in the Metro area received 92 percent. Minority-owned businesses (MOB) received 1 percent of total Qualified Investment made through the program *and* Qualified Investment made by investors responding to the survey. Women-owned businesses (WOB) received 2 percent of the total of all investments and 4 percent of investments made by survey respondents.

Table 2.2. Survey Coverage of Qualified Investments in Twin City Metro Area QSBs, Minority-Owned QSBs & Women-Owned QSBs

	Businesses Located in Twin Cities Metro	Minority-Owned Businesses	Women-Owned Businesses
Total Investment Made by All Qualified Investors	89%	1%	2%
Total Investment Made by Surveyed Qualified Investors	92%	1%	4%

¹¹ Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties

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Businesses responding to the survey are also representative of the full range of the program's QSBs in terms of their industry type.¹² While several industry types are not represented among survey respondents, the most common types among all QSBs registered with the program are well-represented by both the QSB and non-recipient QSB surveys (see bolded rows in Table 2.3)¹³: biotechnology, clean technology, information technology (IT) services, medical devices and equipment, and software. Due to the small number of responses from non-recipient QSBs, their distribution is less well matched to the overall population, with zero representation among responses for several industries. Generally speaking, however, the pattern of survey responses paints a very accurate picture of the geographic dispersion and demographics (e.g., minority-owned, women-owned, industry affiliation) of ATC program participants and investments.

¹² Industry types are assigned by the Minnesota Department of Employment and Economic Development and based on business descriptions provided in program certification forms.

¹³ Defined as those industry types accounting for more than 5 percent of all businesses in the program

Table 2.3. Representativeness of Businesses Surveyed by Industry Type

Industry Type	QSB		Non-Recipient QSB	
	Population (N=216)	Survey Responses (N=63)	Population (N=149)	Survey Responses (N=19)
Biotechnology	7%	8%	8%	5%
Business Products and Services	-	-	1%	0%
Clean Technology	8%	10%	7%	16%
Computers and Peripherals	0.5%	0%	-	-
Consumer Products and Services	5%	3%	1%	0%
Electronics/Instrumentation	2%	2%	1%	0%
Food/Drink	3%	3%	2%	0%
Healthcare Services	4%	3%	3%	0%
Industrial Energy	1%	0%	1%	0%
Internet/Web Services	5%	2%	5%	0%
IT Services	7%	6%	7%	11%
Lifestyle	-	-	1%	0%
Marketing/Advertising	1%	3%	1%	5%
Media and Entertainment	-	-	1%	0%
Medical Devices and Equipment	20%	22%	17%	37%
Mobile	0.5%	0%	1%	5%
Nanotechnology	-	-	1%	0%
Networking and Equipment	1%	2%	1%	0%
Retailing/Distribution	1%	2%	1%	0%
Software	25%	29%	19%	16%
Telecommunications	0.5%	2%	2%	0%
Travel	0.5%	2%	-	-
Other	2%	2%	1%	5%
No industry type specified	3%	2%	16%	0%
Total	100%	100%	100%	105.00%

Note: Percentages may not sum to 100 due to rounding.

3

ANALYSIS OF QSB INVESTMENT IMPACTS

This section of the report summarizes the impact of the ATC program on angel investment activity in Minnesota. It begins with a summary of Qualified Investments from 2010-2012 before discussing the program’s impact on attracting new investment to Minnesota. Survey results and program data are then used to estimate the amount of Qualified Investment that is attributable to the ATC among the responses of surveyed investors before extrapolating attributable investment to the entire population of active investors. Finally, the program’s impact on the angel investment process and environment is discussed, drawing on survey data and interviews.

Investment Summary

During the first three years of the ATC program (2010-2012), a total of \$138.6 million was invested in QSBs; Qualified Investments made during this period range from a minimum of \$200 to a maximum of \$1.2 million; average \$83,520; and have a median value of \$32,917 (see Table 3.1).¹⁴

Table 3.1. Investments Made by All Qualified Investors in ATC Program, 2010-2012

	2010	2011	2012	All Years
Min	\$200	\$282	\$584	\$200
Max	\$1,000,000	\$1,000,000	\$1,000,000	\$1,194,000
Average	\$96,622	\$85,312	\$75,321	\$83,520
Median	\$33,929	\$40,000	\$29,209	\$32,917
Sum	\$28,020,239	\$63,472,205	\$47,150,674	\$138,643,118
QSBs Invested In	67	114	119	196*
N	290	744	626	1,374**

*Total of unique QSBs over all three program years

**Total of unique Qualified Investors over all three program years

Investors responding to the survey are responsible for 23.2 percent of total Qualified Investment made from 2010-2012. As Table 3.2 shows, investments by survey respondents are similar in nature but somewhat larger than those made by all Qualified Investors. Investments made by respondents from 2010-2012 range from a minimum of \$800 to a maximum of \$1 million; average \$93,448; and have a median value of \$50,000.

¹⁴ While Page A-30 of [Minnesota’s Angel Tax Credit – Small Corporate Offering Registration \(SCOR\)](#) states that Qualified Investments made by Angels (individual investors) must be above a minimum of \$10,000, investments may fall below this amount if the investment is part of a Qualified Fund.

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Table 3.2. Investments Made by Qualified Investors Responding to Survey, 2010-2012

	2010	2011	2012	All Years
Min	\$800	\$2,059	\$1,800	\$800
Max	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Average	\$80,593	\$103,207	\$90,347	\$93,448
Median	\$25,002	\$50,000	\$50,000	\$50,000
Sum	\$5,399,704	\$13,829,779	\$13,009,914	\$32,239,397
QSBs Invested In	32	63	75	121*
N	67	134	144	324**

*Total of unique QSBs over all three program years

**Total of unique Qualified Investors over all three program years; note that total differs from total in Table 2.1, which includes investors who made their first investment in 2013.

While Qualified Investors (i.e., individual Angels) are responsible for a large majority of the total investment made through the ATC program during its first three years, 10 percent (\$13.6 million) of the total was made through one of 34 qualified investment funds (see Table 3.3). Under the program, Qualified Funds are treated as pass-through entities, meaning tax credits are not allocated to the fund itself but to taxpayers who are equity holders of the fund.¹⁵

Table 3.3. Share of ATC Program Investment Made by Investment Funds (\$ thousands), 2010-2012

	2010	2011	2012	All Years
Number of Funds Making Investments	4	20	17	34
Total Investment Made by Funds	\$1,290	\$7,008	\$5,335	\$13,633
Share of All Investments Made	5%	11%	11%	10%

The total investment made by Qualified Investors and Funds from 2010-2012 is distributed across a variety of DEED-assigned industry types. Medical device and equipment companies received the greatest share of investment during this period, followed by software; biotechnology; and clean technology companies (see bolded rows in Table 3.4). While QSBs fall into these broadly-defined industry types for reporting purposes, to qualify for the ATC program and become eligible for investments they must be “engaged in” or “committed to engage in” one of three types of innovation as their primary activity.¹⁶

¹⁵ Per program guidelines, Qualified Funds must also have at least three owners who would be eligible, individually, to receive Angel Credits for direct investments in QSBs. See Pages A-23 through A-25 of [Minnesota’s Angel Tax Credit – Small Corporate Offering Registration \(SCOR\)](#) for details on Qualified Fund eligibility.

¹⁶ See Pages A-11 through A-19 of [Minnesota’s Angel Tax Credit – Small Corporate Offering Registration \(SCOR\)](#) for details on QSB eligibility.

Table 3.4. Total Investment in QSBs by Industry Type (\$ thousands), 2010-2012

Industry	Qualified Investment	Share of Total
Biotechnology	\$24,285	18%
Clean Technology	\$19,032	14%
Consumer Products and Services	\$3,201	2%
Electronics/Instrumentation	\$4,802	3%
Food/Drink	\$1,952	1%
Healthcare Services	\$5,441	4%
Industrial Energy	\$430	0.3%
Internet/Web Services	\$3,603	3%
IT Services	\$6,651	5%
Marketing/Advertising	\$3,240	2%
Medical Devices and Equipment	\$29,851	22%
Networking and Equipment	\$1,208	1%
Other	\$1,310	1%
Retailing/Distribution	\$1,988	1%
Software	\$27,530	20%
Telecommunications	\$105	0.1%
Travel	\$400	0.3%
(blank)	\$3,614	3%
Total	\$138,643	100%

Many angel investors contributed to QSB enterprises in capacities beyond their financial investment, including through formal roles on company boards and by providing informal advice and mentoring. Seventy five percent of surveyed investors serve as officers for the firms in which they invested, 80 percent serve on the board of directors, and 83 percent function as a mentor to the firm’s founder or other executive(s).

ATC Impact on New Angel Investment

Several survey indicators were used to help assess the likelihood that investment activity occurring through the ATC program was new angel investment in Minnesota as opposed to investment that would have occurred anyway, i.e., in the absence of the program.

Three indicators were used, based on investor survey data:

1. **New Angel Investors.** If the ATC program attracted new investors who had not previously made angel investments, it is more likely that these investors would not otherwise have invested in early stage Minnesota businesses. There is evidence to suggest that, with growth in formalized angel networks, groups, and

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funds, the amount of co-investment has increased in recent years.¹⁷ It is therefore likely that, nationally, an increasing number of angel investments are made by repeat investors and established groups.

2. **Related Party or “Inside” Investors.** Founders and principals in a business and their immediate family members are often involved in financing new enterprises and more likely to invest equity in a business without a tax credit incentive than outside investors.¹⁸ If most of the QSB investment is from outside investors then it is more likely to have been affected by the ATC.
3. **Investing Levels Before and After ATC.** Total angel investment by a subgroup of Qualified Investors who made investments before the program existed will have increased from 2010-2012, after the ATC was in effect, when compared with prior three year periods if the ATC generated new investment activity.

3.1.1 Extent of New Angel Investor Participation

Most investors participating in the ATC program are new to angel investing anywhere. According to the investor survey, 20 percent of Qualified Investors made angel investments in Minnesota or elsewhere prior to 2010. If the survey responses are reflective of the entire program, then, every four out of five investors participating in the Minnesota ATC program is a new angel investor. Evidence from the Center for Venture Research at the University of New Hampshire suggests that the extent of new angel participation would not have been as great without the ATC. Nationally, the number of angel investors has grown slowly and even declined in recent years, with the exception of 2011 when there was a 20 percent increase.¹⁹ From 2011-2012, the number of investors fell by 16 percent, and in the three years prior to the ATC’s inception (2007-2009), the number of investors grew by only 0.5 percent.

3.1.2 Extent of “Inside Investment”

“Inside investors” are defined as those who are/were a founder, executive, principal, or board member in the QSB at the time of investment, or those who are/were an immediate family member of a founder, executive, principal, or board member. Such investors ostensibly have a strong personal stake in the firm’s success and thus may well have invested without any provision of tax credits. Forty percent of survey respondents indicated that they were a founder, executive, principal, or board member in the QSB in

¹⁷ According to the 2012 HALO Report, the share of co-invested angel deals has increased from 41 percent in 2010 to 69 percent in 2012 (see <http://www.svb.com/halo-report-2012-pdf/>).

¹⁸ Allen N. Berger and Udell, Gregory F., 1998, “The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle,” *Journal of Banking and Finance*, 22: 613-673, report that principal owners account for 63 percent of equity investment in U.S. small businesses and that “insiders,” including other members of the start-up team, account for much of the remaining equity, particularly for seed and start-up stages.

¹⁹ See annual market analysis reports from the Center for Venture Research at <https://paulcollege.unh.edu/research/center-venture-research/cvr-analysis-reports>.

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which they invested, while another 10 percent were immediate family members.²⁰ If the survey is representative of all Qualified Investors, half are insiders with a strong incentive to invest even without the ATC. These two types of insiders reported investing \$12,597,450 and \$871,401 in QSBs from 2010-2012, respectively. The combined investment of \$13.5 million made by firm founders, executives, principals, and their immediate family accounts for nearly 42 percent of the total Qualified Investment made by surveyed investors from 2010-2012. This result is difficult to interpret as the ATC may have motivated these insiders to *increase* their level of investment; a portion of this \$13.5 million, then, may have resulted from the tax credit incentive.

Investor survey results indicate that the ATC did contribute to a sizeable increase in insider investment. Among inside investors who made at least one investment from 2010-2012, 86 percent responded to the question about their investment behavior had the ATC not existed. Seventeen percent of these insiders indicated they would have made the same investment in 2010, 2011, or 2012 had the tax credit not existed; 41 percent said they would have made a smaller investment; and 42 percent would not have made an investment during one of the three years. Of the insiders stating they would have made a smaller investment had the ATC not existed, they would have made, on average, 39 percent of their actual investment.

3.1.3 Investment Levels Before and After ATC Program

For the group investing in the 2004-2006 period (Subgroup 1), these data show a decline in total angel investment but a large percentage shift from out-of-state investment to in-state investment—and increase in the amount of Minnesota investment—once the ATC program was in place (see Table 3.5). In the 2004-2006 period, less than a third of this group's total angel investment went to Minnesota businesses (\$10.9 million); during the program's first three years, the in-state share increased from 32 percent to 74 percent (\$16.1 million). Investors investing in the 2007-2009 period (Subgroup 2) increased their total angel investment significantly, from \$11.4 million to \$27.2 million, after the program was in place, but this increase is likely due in part to the end of a recessionary period.

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²⁰ There were 183 survey responses to these two questions, 74 of which made investments in QSBs in which they were a founder, executive, principal, or board member, and 19 of which were immediate family members.

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Table 3.5 compares (a) the level of Qualified and non-Qualified Investment reported by two subgroups of investor survey respondents who made angel investments prior to the ATC program with (b) their respective levels of 2010-2012 investment. The first group of 27 investors made investments during 2004-2006 while second group of 29 invested from 2007-2009, which cover the two three year periods that pre-date ATC implementation. Because the 2004-2006 timeframe was a period of national economic expansion and the Great Recession occurred during 2007-2009, the former period is more comparable in terms of macroeconomic conditions with the 2010-2012 ATC study period.

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Table 3.5. Comparison of Angel Investments Made by Surveyed Investors over Different Three-Year Periods (\$ thousands)

	Subgroup 1 (N=27)		Subgroup 2 (N=29)	
	2004-2006	2010-2012	2007-2009	2010-2012
Minnesota Businesses*				
Number of Businesses	64	115	57	123
Value of All Investments	\$10,924	\$16,097	\$8,252	\$21,681
Value of ATC Investments	-	\$3,864	-	\$5,338
Non-Minnesota Businesses				
Number of Businesses	75	38	22	28
Value of Investments	\$22,950	\$5,665	\$3,146	\$5,570
Value of Investments Receiving Tax Credit	\$145	\$270	\$500	\$25
Total Angel Investment	\$33,874	\$21,762	\$11,398	\$27,251
Minnesota Share of Total	32.2%	74%	72.3%	79.6%

*Includes both Qualified and Non-Qualified Investments

Although these data are not definitive, all three indicators point in a direction that suggests the ATC attracted new angel investment to Minnesota firms beyond the level of investment that would have occurred without the tax credits:

- 80 percent of surveyed Qualified Investors were new to angel investing;
- 58 percent of Qualified Investments reported in the survey were made by non-inside investors, while insiders reported that the ATC increased their investment amounts;

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- Among surveyed investors who made angel investments before and after implementation of the ATC program, the total angel investment in Minnesota firms increased 47 percent between the 2004-2007 period (before the ATC existed) and 2010-2012 period (after the program was in place); and
- Among the same group, the share of angel investment made within Minnesota more than doubled, from 32 percent during the 2004-2006 period to 74 percent during the first three years of the program.

With multiple indicators supporting the conclusion that there was significant new angel investment attributable to the ATC, the next section uses survey responses to estimate the amount on new angel investment that can be reasonably attributed to the tax credit.

Total Investment Attributable to ATC

A key question in evaluating the ATC program is the extent to which investment in QSBs was generated as a result of the tax credit. Angel investment attributable to the ATC includes that which would not have been invested had the program not existed and excludes investment that was simply shifted from other angel investment opportunities in Minnesota. To estimate attribution, individual investors were surveyed about their expected investment behavior had the ATC not been available. Among Qualified Investors who made an investment during one of the program's first three years and answered the question about their investment behavior, nearly half (48%) would not have made their investment had the ATC not existed.²¹ Almost one-third (34%) said they would have made a smaller investment from 2010-2012 and 18 percent said they would have made the same (or full) investment had the ATC not existed (see Table 3.6). Based on the overall survey response, the ATC expanded angel investments for over three-quarters of active investors.

Of those investors who said they would have made smaller investments in QSBs, 4 percent would have made a quarter or less of their actual investment had the ATC not been available. Another 17 percent said they would have made between one-quarter and one-half of their actual investment and 12 percent said they would have made between one-half to two-thirds of their investment. Very few investors said they would have made greater than three-quarters but less than their full investment (see Table 3.6).

²¹ Question 19 in the Investor Survey (see Appendix B)

Table 3.6. Individual Investor Behavior Had the ATC Not Existed

	2010	2011	2012	Average (all years)
Said they would not have made investment	52%	42%	51%	48%
Said they would have made...				
1-25% of investment	2%	7%	2%	4%
26-50% investment	16%	16%	19%	17%
51-75% investment	14%	11%	11%	12%
76-99% investment	2%	1%	1%	1%
Full investment	16%	22%	15%	18%
Total	100%	100%	100%	100%
N	58	98	123	279

Note: Percentages may not sum to total due to rounding.

To estimate program attribution, actual investments are adjusted according to the exact shares provided by survey respondents (summarized within ranges in Table 3.6) to calculate the total investment amount they said would have occurred without the ATC; these amounts are then subtracted from respondents' actual ATC investments. Investments made by those respondents saying they would have made no investment but for the ATC are adjusted down to zero, for instance, while investments made by respondents saying they would have made the full investment are left as is. **The sum of these adjusted investments, minus investments made by those survey respondents who did not answer Question 19 of the survey, represents the total investment that would have been made by survey respondents without the ATC.²² The investment attributable to the ATC, then, is calculated as the difference between the actual investment made and the investment that investors said they would have made without the ATC.**

Individual investors responding to the survey question about attribution and providing their name represent \$25.7 million of the actual investment made from 2010-2012 or approximately 19 percent of the total investment among all program investor participants during this period.²³ Subtracting the value of **investments made without the ATC** revealed by survey respondents in Table 3.6 from their actual investment amounts in 2010, 2011, and 2012 yields a net investment of \$13.3 million that is attributable to the tax credit (see Table 3.7). This additional investment represents 52 percent of the actual investment made from 2010-2012. Qualified investments were most contingent on the existence of the tax credit in 2010 and least contingent in 2011.

²² Question 19 reads, "Had the Minnesota Angel Tax Credit not existed, how would you have used the funds you invested in a Qualified Angel Investment for that particular year?" See the Investor Survey in Appendix B for answer choices. Because there is no information about the behavior of non-respondents without the ATC, their investments are excluded from the estimate of ATC-attributable investment.

²³ A total of 31 investors did not provide a name and thus could not be associated with an actual investment in the ATC program database.

Table 3.7. Investment Attributable to ATC among Survey Respondents (\$ thousands), 2010-2012

	2010	2011	2012	All Years
Actual Investment ²⁴	\$ 4,085	\$ 10,763	\$ 10,884	\$25,732.00
Occurring without ATC				
Investment	\$ 1,728	\$ 5,711	\$ 4,977	\$12,416.00
Share of Actual Investment	42%	53%	46%	48%
Attributable to ATC				
Investment	\$2,357	\$5,051	\$5,907	\$13,315.00
Share of Actual Investment	58%	47%	54%	52%

A program-wide estimate of the investment attributable to the ATC is then extrapolated from survey results by applying the share of actual investments that would have occurred without the ATC in Table 3.7 to the total investment levels for each year from 2010-2012. Doing so yields an estimated total of \$71.7 million that is attributable to the ATC—or would not have been invested during the program’s first three years had the tax credit not existed (see Table 3.8).

Table 3.8. Estimated Investment Attributable to ATC among All Program Participants (\$ thousands), 2010-2012

	2010	2011	2012	Total
Actual Investment	\$28,020	\$63,731	\$47,151	\$138,902
Occurring without ATC				
Estimated Investment	\$11,768	\$33,777	\$21,689	\$67,234.00
Share of Actual Investment from Table 3.7	42%	53%	46%	48%
Attributable to ATC				
Estimated Investment	\$16,252	\$29,954	\$25,462	\$71,668.00
Estimated Share of Actual Investment	58%	47%	54%	52%

Attributable Investment in Greater Minnesota and Minority-Owned QSBs

The existence of the ATC also increased the total investment in Greater Minnesota QSBs and minority-owned businesses (MOB)—although both represent a small share of respondents, number of QSBs, and total investment captured through the survey. Of the \$2.1 million that survey respondents invested in Greater Minnesota QSBs from 2010-2012, only \$856,000 would have been invested without ATCs. This difference of \$1.3 million represents 60 percent of the actual investment in these QSBs (see Table 3.9).

²⁴ This total excludes non-respondents and thus is less than the entire investor survey total of \$32.5 million.

Table 3.9. Investment in Greater Minnesota and Minority-Owned Businesses Attributable to ATC among Survey Respondents (\$ thousands), 2010-2012

	Greater Minnesota QSBs	Minority- Owned QSBs
Actual Investment	\$2,118	\$275
Occurring without ATC		
Investment	\$856	\$154
Share of Actual Investment	40%	56%
Attributable to ATC		
Investment	\$1,262	\$121
Share of Actual Investment	60%	44%

Survey respondents invested a total of \$275,000 in MOBs from 2010-2012, but approximately 56 percent of this amount would have been invested even without the ATC. The tax credit, then, is responsible for generating \$121,000 for these QSBs among investors responding to the survey, or 44 percent of the actual investment (see Table 3.9).

By demonstrating the representativeness of the overall survey response in terms of Greater Minnesota QSBs and minority-owned businesses in Table 2.2, Section 2.1.1, the survey results in Table 3.9 are extrapolated to form the estimates below. Applying the share of survey respondents' actual investments that would have occurred without the ATC to actual investments in the program database, it is estimated that the existence of the tax credit resulted in \$8.8 million of investment in Greater Minnesota QSBs and \$616,000 in MOBs (see Table 3.10).

Table 3.10. Estimated Investment in Greater Minn., Minority- & Women-Owned QSBs Attributable to ATC among All Program Participants (\$ thousands), 2010-2012

	Greater Minnesota QSBs	Minority- Owned QSBs
Actual Investment	\$14,719	\$1,400
Occurring without ATC		
Estimated Investment	\$5,888	\$784
Share of Actual Investment from Table 3.9	40%	56%
Attributable to ATC		
Estimated Investment	\$8,831	\$616
Estimated Share of Actual Investment	60%	44%

Women-owned businesses (WOBs) received a total of \$1.2 million from investors responding to the survey. This value accounts for 41 percent of the \$2.9 million invested in WOBs by all investors from 2010-2012 but, because of an inadequate survey response, the ATC-attributable share of this investment cannot be confidently determined.

Attributable Investment by Industry

The ATC’s attribution effect varied slightly according to the industry Qualified Small Businesses belong to. By looking more closely at the most common industry types, as identified previously in Table 2.3, the analysis suggests that investments in medical device and equipment manufacturing QSBs depend more heavily on the existence of the ATC than investments in other industry types. Of the \$6.7 million invested in responding QSBs in this category, approximately \$2.7 million would have been invested even without the ATC, meaning the remaining \$3.6 million—or nearly 60 percent of the actual value invested—is attributable to the tax credit (see Table 3.11). Investment in IT services QSBs, conversely, are least contingent on the ATC, with the amount attributable to the tax credit comprising only 36 percent of the actual investment made by survey respondents.

Table 3.11. Investment by Industry Attributable to ATC among Survey Respondents (\$ thousands), 2010-2012

	Biotech	Clean Tech	IT Services	Medical Devices & Equip.	Software	All Other
Actual Investment	\$3,033	\$1,631	\$1,345	\$6,655	\$7,179	\$5,890
Occurring without ATC						
Investment	\$1,580	\$876	\$865	\$2,744	\$3,619	\$2,731
Share of Actual Investment	52%	54%	64%	41%	50%	46%
Attributable to ATC						
Investment	\$1,453	\$755	\$480	\$3,911	\$3,559	\$3,160
Share of Actual Investment	48%	46%	36%	59%	50%	54%

Note: Row totals may not equal totals in Table 3.7 due to rounding.

In similar fashion to the previous analyses of attribution by year and Greater Minnesota or minority-owned status, shares of actual investments that would have even occurred without the ATC from Table 3.11 are applied to total program investments to estimate the full attribution effect from 2010-2012 by industry type. By doing so, it is estimated that \$54.2 million was invested in the five most common industry types and approximately \$17 million in all other industry types as a result of the ATC (see Table 3.12).

Table 3.12. Estimated Investment by Industry Attributable to ATC among All Program Participants (\$ thousands), 2010-2012

	Biotech	Clean Tech	IT Services	Medical Devices & Equip.	Software	All Other
Actual Investment	\$24,285	\$19,032	\$6,651	\$29,851	\$27,530	\$31,551
Occurring without ATC						
Estimated Investment	\$12,628	\$10,277	\$4,257	\$12,239	\$13,765	\$14,513
Share of Actual Investment from Table 3.11	52%	54%	64%	41%	50%	46%
Attributable to ATC						
Estimated Investment	\$11,657	\$8,755	\$2,394	\$17,612	\$13,765	\$17,038
Estimated Share of Actual Investment	48%	46%	36%	59%	50%	54%

Note: Row totals may not equal totals in Table 3.8 due to rounding.

3.1.4 Attributable Manufacturing and Non-Manufacturing Investment

Attributable investment is also estimated according to a manufacturing/non-manufacturing QSB dichotomy.²⁵ Among survey respondents, \$14.5 million was invested in manufacturing QSBs and \$11.3 million was invested in non-manufacturing QSBs from 2010-2012. Similar to the three-year share of actual investment attributable to the ATC in Table 3.7 above, slightly over half of the investment in both manufacturing and non-manufacturing QSBs is contingent on the program (see Table 3.13).

Table 3.13. Investment in Manufacturing and Non-Manufacturing QSBs Attributable to ATC among Survey Respondents (\$ thousands), 2010-2012

	Manufacturing QSBs	Non-Manuf. QSBs
Actual Investment	\$14,475	\$11,257
Occurring without ATC		
Investment	\$6,941	\$5,466
Share of Actual Investment	48%	49%
Attributable to ATC		
Investment	\$7,534	\$5,791
Share of Actual Investment	52%	51%

Note: Row totals may not equal totals in Table 3.7 due to rounding.

²⁵ While DEED-assigned industry types do not provide the ability to distinguish between QSBs involved in manufacturing activities and those not involved in manufacturing activities, business survey respondents provided three-digit NAICS codes, thus allowing for more specific industry categorization.

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By extrapolating attributable investment shares from Table 3.13 above to the full population of Qualified Investors (using a combination of information from the investor survey, business survey, and program database), it is estimated that \$37.2 million would not have been invested in manufacturing QSBs and \$34.4 million would not have been invested in non-manufacturing QSBs from 2010-2012 without the ATC program (see Table 3.14).

Table 3.14. Estimated Investment in Manufacturing and Non-Manufacturing QSBs Attributable to ATC among All Program Participants (\$ thousands), 2010-2012

	Manufacturing QSBs	Non-Manuf. QSBs
Actual Investment	\$71,540	\$67,362
Occurring without ATC		
Estimated Investment	\$34,339	\$33,007
Share of Actual Investment from Table 3.13	48%	49%
Attributable to ATC		
Estimated Investment	\$37,201	\$34,355
Estimated Share of Actual Investment	52%	51%

Note: Row totals may not equal totals in Table 3.8 due to rounding.

Additional Investment Leveraged with ATC

Information from the investor surveys and business surveys is combined to form a complete picture of the ATC program's impact on investment activity. More specifically, while investors reported the amount of their investment that is attributable to the ATC, QSBs reported the amount of *additional* debt or equity investment they were able to leverage using the ATC. The program is thus responsible for the amount of attributable investment plus the amount of leveraged investment (and not responsible for investment that would have been made or leveraged in its absence). This sum of attributable investment and leveraged investment forms the input for the economic and tax revenue impact analyses in Chapter 5.

To estimate the amount of leveraged investment among all program QSBs, survey-provided values for "additional investment contingent on the ATC" are first divided into actual Qualified Investment amounts to produce ratios of leveraged debt-to-Qualified Investment and leveraged equity-to-Qualified Investment for manufacturing QSBs and non-manufacturing QSBs (see Table 3.15 and Table 3.16).

Table 3.15. Leveraged Debt & Equity Investment with ATC among Manufacturing QSBs Responding to Survey, 2010-2012

	2010	2011	2012	All Years
Actual ATC Investment	\$4,021,857	\$19,850,306	\$8,802,408	\$32,674,571
Debt Capital				
Leveraged Investment	\$70,000	\$4,720,000	\$855,000	\$5,645,000
Share of ATC Investment	2%	24%	10%	17%
Equity Capital				
Leveraged Investment	\$1,398,216	\$3,546,096	\$409,000	\$5,353,312
Share of ATC Investment	35%	18%	5%	16%

Table 3.16. Leveraged Debt & Equity Investment with ATC among Non-Manufacturing QSBs Responding to Survey, 2010-2012

	2010	2011	2012	All Years
Actual ATC Investment	\$6,323,500	\$13,087,671	\$7,351,048	\$26,762,219
Debt Capital				
Leveraged Investment	\$2,101,500	\$1,380,000	\$2,826,151	\$6,307,651
Share of ATC Investment	33%	11%	38%	24%
Equity Capital				
Leveraged Investment	\$805,000	\$2,329,750	\$6,515,000	\$9,649,750
Share of ATC Investment	13%	18%	89%	36%

These leverage ratios are then applied to the discounted (i.e., attributable) ATC amount before adding it to the attributable investment from Section 3.1.4, rather than applying it to the full ATC amount. This way, QSB-provided information about the ratio of investment-to-leveraged investment provides the basis for extrapolation, i.e., the ratio does not change. Table 3.17 shows that, using this approach, manufacturing QSBs leveraged an estimated \$5.7 million in additional debt capital and \$6.1 million in additional equity capital from 2010-2012 that could not have been leveraged without the ATC program, for a three-year total of \$49 million in leveraged and attributable investment.

Table 3.17. Estimated Leveraged Debt & Equity Investment with ATC among All Manufacturing QSBs, 2010-2012

	2010	2011	2012	All Years
Actual ATC Investment	\$12,605,284	\$35,549,154	\$23,385,374	\$71,539,812
ATC-Attributable Investment	\$6,554,748	\$18,485,560	\$12,160,394	\$37,200,702
Debt Capital				
Estimated Leveraged Investment	\$114,085	\$4,395,491	\$1,181,170	\$5,690,745
Share of ATC-Attributable Investment	2%	24%	10%	15%
Equity Capital				
Estimated Leveraged Investment	\$2,278,786	\$3,302,295	\$565,027	\$6,146,109
Share of ATC-Attributable Investment	35%	18%	5%	17%
Leveraged Debt & Equity Investment plus Estimated ATC-Attributable Investment				\$49,037,557

Note: Due to summing and rounding across years, debt and equity leverage shares in the All Years column are not exact matches of the percentages in Table 3.15. The sum of leveraged investment in All Years *does* represent the sum of annual investments, however, and is thus based directly on survey results.

Table 3.18 shows that non-manufacturing QSBs leveraged an estimated \$8.8 million in additional debt capital and \$14.3 million in additional equity capital from 2010-2012 that could not have been leveraged without the ATC program, for a three-year total of \$57.4 million in leveraged and attributable investment.

Table 3.18. Estimated Leveraged Investment with ATC among All Non-Manufacturing QSBs, 2010-2012

	2010	2011	2012	All Years
Actual ATC Investment	\$15,414,955	\$28,181,567	\$23,765,300	\$67,361,822
ATC-Attributable Investment	\$7,861,627	\$14,372,599	\$12,120,303	\$34,354,529
Debt Capital				
Estimated Leveraged Investment	\$2,612,668	\$1,515,486	\$4,659,717	\$8,787,872
Share of ATC-Attributable Investment	33%	11%	38%	26%
Equity Capital				
Estimated Leveraged Investment	\$1,000,808	\$2,558,481	\$10,741,838	\$14,301,128
Share of ATC-Attributable Investment	13%	18%	89%	42%
Leveraged Debt & Equity Investment plus Estimated ATC-Attributable Investment				\$57,443,530

Note: Due to summing and rounding across years, debt and equity leverage shares in the All Years column are not exact matches of the percentages in Table 3.16. The sum of leveraged investment in All Years *does* represent the sum of annual investments, however, and is thus based directly on survey results.

Leverage Sensitivity

Importantly, QSB survey responses reveal that many businesses leveraged no investment with the ATC. Also, the leveraged investment that does exist is concentrated in a few firms (see Table 3.19). Two-thirds of QSBs receiving a Qualified Investment in 2010 leveraged either debt or equity financing that year, but 99 percent of this leveraged debt

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and 69 percent of this leveraged equity went to the top three debt leveraging QSBs and top three equity leveraging QSBs, respectively. Leveraged investments occurred for half of QSBs with ATC investments in 2011, with the top three debt leveraging QSBs accounting for 92 percent of all leveraged debt and the top three equity leverages accounting for 76 percent of leveraged equity in that year. The share of QSBs receiving leveraged investment dropped to 42 percent in 2012, with the top three debt and equity leveraging QSBs accounting for 69 percent and 85 percent of the total, respectively.

Table 3.19. Incidence of Leverage among QSBs Responding to Survey, 2010-2012

	2010	2011	2012	All Years
Number of QSBs receiving ATC Investment	20	43	41	60*
Number of QSBs with Leveraged Debt or Equity Investment	10	20	15	28
Number of QSBs with Leveraged Debt Investment	4	7	10	15
Share of Total Leveraged Debt represented by Top Three Leveraging QSBs	99%	92%	69%	75%
Number of Surveyed QSBs with Leveraged Equity Investment	7	16	11	22
Share of Total Leveraged Equity represented by Top Three Leveraging QSBs	69%	76%	87%	66%

*As noted in Chapter 2, a total of 63 QSBs responded to the business survey. For this analysis, however, two QSBs were excluded because they received their first investment in 2013 and one QSB was excluded because they did not provide a name (and could thus not be associated with an ATC investment in the program database).

Given the high concentration of leveraged dollars among a few “big leveraging” QSBs, some readers will be skeptical of extrapolated estimates. With uncertainty about the ability of *non-survey-responding* QSBs to leverage investment, however, we consider the approach taken to be the best option available. As mentioned previously, considering the ratio of *all* leveraged dollars to *all* attributable investment dollars, regardless of the number of QSBs leveraging those dollars, provides a program-level estimate of the relationship between investment unleashed as a result of the ATC and investment leveraged with those unleashed dollars. Nevertheless, there is the possibility of under- or over-estimation of the ATC’s actual leveraged investment when using this approach.

4

DISPLACEMENT & INVESTMENT PROCESS IMPACTS

The efficacy of the ATC program could be limited if investment in QSBs was simply shifted from investment in other Minnesota firms or projects. The prior chapter discussed evidence of and provided estimates for the amount of new angel investment attributable to the ATC. However, it is possible that without the ATC, these investors would have made other non-angel investments in Minnesota firms and activities that would also have produced economic and fiscal impacts. To the extent that the attributable ATC investment was transferred or displaced from one Minnesota firm to another, the economic and fiscal benefits of these investments are reduced.

To help address this question, investors who said they would have made smaller or no investment in QSBs from 2010-2012 without the credit (i.e., investors who said their investments were attributable to the ATC) were also asked about their alternative use of these funds had the ATC not existed. As Table 4.1 shows, over 80 percent of investors surveyed said they would have invested in conventional investments such as publicly traded equities, fixed income securities, and cash/money market funds. Between 3 and 5 percent of investors said they would have invested in other Minnesota angel investments in any given year, and a slightly larger share reported that they would have invested in other non-Minnesota angel investments. Between 5 to 6 percent of investors indicated that, in the absence of the ATC, they would have spent the funds they invested in any given year.

Table 4.1. Alternative Types of Investment, 2010-2012

Investment Type	2010	2011	2012
Publicly Traded Equities	60.2%	51.7%	56.9%
Taxable Fixed Income	3.3%	5.4%	4.4%
Tax-Exempt Fixed Income	4.9%	7.4%	6.9%
Cash/Money Market	14.6%	20.1%	17.6%
Other MN Angel Investment	4.9%	5.4%	3.4%
Other Non-MN Angel Investment	6.5%	4.7%	5.9%
Spent Funds	5.7%	5.4%	4.9%
Total	100%	100%	100%

Source: See footnote on previous page

Note: Row totals may not equal 100% due to rounding.

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This pattern of alternative investments suggests a limited displacement effect. Investments in conventional equity, fixed income, and cash are unlikely to have contributed sizeable funds to Minnesota as they were probably placed in national capital markets. At best, the diversion of funds might represent 1.5 to 2 percent of Qualified Investment, or Minnesota's share of national gross domestic product (GDP). Moreover, most of these investments were likely purchases of existing securities that transfer funds between investors rather than purchases of new debt or equity placements that provide new debt or equity to firms.

Additional displacement is related to the estimated \$34.9 million in leveraged debt and equity financing attributed to the ATC. Unfortunately, there is no information on the sources and alternative deployment of the \$34.9 million in estimated leveraged funds, although it is likely that the level of displacement is higher than for the angel investment dollars, particularly for the \$14.5 million in debt. Because local financial institutions and investors are the most probable sources of debt for small, high-risk firms, these parties are likely to have invested much of this capital in other Minnesota firms had the ATC not existed. However, the overall impact of a large share of displacement for leveraged debt would still be moderate as it accounts for only 14 percent of the total estimated new investment attributable to the ATC.

Trends in National Angel Investment

National angel investment trends represent another factor that informs an analysis of potential displacement effects. As shown in Table 4.2, national angel investment increased from 2010-2012 at an annual average rate of 9.3 percent. The highest growth occurred in 2010, at 14 percent, and the lowest occurred in 2012 (1.8%). The combined amount of national angel investment during this three-year period was \$65.5 billion—a 4.3 percent increase over the 2007-2009 period. With this growth in national angel investing, one would expect Minnesota to have experienced growth in angel investment without the ATC and thus some displacements effects from the credit.

Table 4.2. National Angel Investment, 2010-2012

Measure	2010	2011	2012
Total Angel Investment (\$ billions)	\$20.1	\$22.5	\$22.9
Percent Change from Prior Year	14.0%	12.10%	1.80%
Number of Firms Receiving Angel Investments	61,900	66,230	67,030

Source: Center for Venture Research, *The Angel Investor Market*, annual reports for 2010, 2011 and 2012, <http://paulcollege.unh.edu/center-venture-research>.

Moreover, the investor survey indicates that investors participating in the ATC program had a strong proclivity to invest in Minnesota before the credit was established: over two-thirds of angel investments reported by survey respondents from 2007-2009 went into Minnesota-based firms.

Out-of-State Investment

One indication of “new” angel investment attracted to Minnesota as a result of the ATC program is the extent of investment made by out-of-state investors. While out-of-state investors may still have invested in Minnesota in the absence of the ATC program, it is probable that some forewent investments in their home state (or another state) *because* of the ATC’s existence (especially for those investors who live in states that offer their own tax credit for angel investment) (see Table 4.3). During the program’s first three years, the three largest sources of Qualified Investment after Minnesota were Florida (\$8.2 million), Iowa (\$5.7 million), and California (\$2.9 million). Interestingly, none of these states currently offer tax credits for angel investment. California, however, is a hotbed for angel investment, receiving nearly 30 percent of U.S. angel dollars in 2011, according the HALO Report.²⁶

Table 4.3. Qualified Investment by State where Investor Resides, 2010-2012

State	Number of Investors	Share of All Investors	Total Investment (2010-2012)	Share of Total Investment	Angel Tax Credit
Arizona	8	0.6%	\$2,863,034	2.1%	✓
California	42	3.1%	\$2,904,683	2.1%	
Florida	54	3.9%	\$8,242,052	5.9%	
Iowa	56	4.1%	\$5,713,816	4.1%	
Illinois	38	2.8%	\$2,046,638	1.5%	✓
Indiana	14	1%	\$392,788	0.3%	✓
Minnesota	935	68%	\$99,789,285	71.8%	✓
Wisconsin	44	3.2%	\$2,272,636	1.6%	✓
All others*	183	13%	\$14,676,702	11%	
Total	1,374	100%	\$138,901,634	100%	

Source for availability of angel tax credits: Angel Capital Association (see <http://www.angelcapitalassociation.org/public-policy/existing-state-policy/>)

*Canadian provinces included

Evidence from a 2013 HALO Report suggests that, nationally, most angel investment deals are completed in investor groups’ home state or region. While we were unable to find data on angel investment by state of residence for individual investors in years prior to 2010, the report finds that during the last three quarters of 2012 and first two quarters of 2013, the investors and companies were in the same state in 70-78 percent of all deals, and in the same region for 79-87 percent of all deals.²⁷ Assuming similar trends in years prior to the 2012-2013 period, this suggests that the ATC was particularly effective in

²⁶ See <http://www.cbinsights.com/blog/angel-investment/angel-investment-data-2011-halo-report>.

²⁷ See <http://www.angelcapitalassociation.org/data/ACEF/HaloReport1H2013final.pdf>.

attracting angel investment from regions outside Minnesota (i.e., the U.S. Southwest, West Coast, and Southeast).

Non-Qualifying Investment

One potential outcome from the ATC is that it expanded angel investment beyond the program by increasing investors' exposure to and interest in early stage Minnesota businesses. To assess this result, investors and investment funds were surveyed about their non-QSB angel investments. Approximately 22 percent of the investors responding to the survey made angel investments from 2010-2012, either in Minnesota or elsewhere, that did not qualify for the ATC.²⁸ Similarly, 33 percent of the surveyed investment funds made non-qualified angel investments during this period.²⁹

Table 4.4 shows that, from 2010-2012, survey respondents invested \$26.3 million in Minnesota businesses that did not qualify for the ATC. These investors also invested \$15.7 million in non-Minnesota businesses during this period, \$14.2 million of which did not receive a tax credit and \$1.5 million of which did. Of the three-year total of \$42.1 million in non-qualifying investment, either in Minnesota or out-of-state, survey respondents reported that approximately \$618,000 (1.7%) was a direct outgrowth of their participation in the ATC program.

Table 4.4. Non-Qualifying Angel Investments Made in Minnesota and Non-Minnesota Businesses among Investor and Investment Fund Survey Respondents by Year (\$ thousands), 2010-2012

	2010	2011	2012	All Years
Minnesota Businesses				
Number of Businesses	66	56	50	172
Value of Investments Not Qualifying for ATC	\$ 9,805	\$10,468	\$6,065	\$26,338
Non-Minnesota Businesses				
Number of Businesses	43	34	26	103
Value of Investments Not Receiving a Tax Credit	\$5,500	\$5,383	\$3,338	\$14,221
Value of Investments Receiving a Tax Credit	\$195	\$1,250	\$88	\$1,533
Total Value of Non-Qualifying Angel Investments	\$15,500	\$17,101	\$9,491	\$42,092.00
Total Value Resulting from Participation in ATC Program				\$618

²⁸ Just over 70 percent did not make other angel investments and 7 percent did not respond to the question.

²⁹ This represents 3 of 9 Investment Funds. Ten funds responded to the survey, but data from one of the respondents was excluded because all of its investment activity was outside Minnesota and did not appear to be angel investments in small businesses.

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The sum of non-qualifying investments represents 129 percent of the investment for which survey respondents received ATCs. However, when only Minnesota investments are considered, non-qualifying investments total 81 percent of Qualified Investment among surveyed investors and funds. Also, of the total out-of-state angel investment, the vast majority (90%) did not receive any tax credit.

Although it is difficult to interpret what these non-qualifying investments indicate about the impact of the ATC, there is a significant amount of Minnesota angel investment activity that does not depend on the existence of a tax credit. Most of these investments were not a direct outgrowth of the ATC, e.g., a follow-on investment occurring after annual tax credit allocation was exhausted or an opportunity discovered through the ATC process. This suggests that the ATC did not generate much new angel investment beyond the qualified investments under the program.

Program Impact on Angel Investment Process

Information on the investment process, and the ATC's potential impact on this process, is obtained through the survey of individual investors. These data highlight the role of firm principals, other investors, and professional colleagues in identifying angel investment opportunities, and indicate that the ATC program has had the greatest impact on awareness of investment opportunities in (1) the Twin Cities Metro area and (2) for emerging technologies and industries. Table 4.5 presents survey results on how angel investors learned about the Qualified Investments they made in the Twin Cities Metro area and Greater Minnesota (because investors learned of investment opportunities from several sources, column totals exceed 100%).

The most common information source for investment opportunities is the firm itself (cited by 57% of survey respondents), followed by referrals from other angel investors, networks, or funds (25%) and investors' professional and social networks, including colleagues, coworkers, and friends (19%) (see Table 4.5). The DEED Qualified Small Business list, economic developments organizations, and web/media research are the least common ways to find investments, cited by less than 2 percent of investors.

Table 4.5. Percentage of Surveyed Investors Who Found Qualified Investments in the Twin Cities Metro and Greater Minnesota from Various Information Sources

Information Source	Twin Cities Metro	Greater Minnesota	Both Areas
Investor was a firm principal, founder or executive	11.9%	13.5%	12.6%
From the firm principal founder or executive	58.2%	29.7%	57.4%
From participating in an angel investment network	7.5%	2.7%	7.3%
Through a referral from another angel investor, angel investment network, or fund	23.5%	29.7%	25.2%
From the DEED Qualified Small Business list	1.4%	0%	1.3%
From an accountant or attorney	3.4%	0%	3.2%
Through a business association or network	13.3%	13.5%	13.9%
From an economic development organization	1.7%	2.7%	1.9%
From a co-worker, professional colleague, or friend	18%	21.6%	19.2%
Through web or other media research	1.7%	0%	1.6%

Investors rely on similar sources to identify investments within and outside the Twin Cities Metro area, although businesses themselves are a more important information source for investments within the metro area (58% versus 30%) while referrals from other angels and professional and social networks are a more important information source for investments in Greater Minnesota businesses (see Table 4.5).

Investors were also queried about how participation in the ATC program has affected their knowledge of investment opportunities. Table 4.6 illustrates that, among Qualified Investors responding to the survey, 68 percent reported that the program has increased their awareness of investment opportunities within the Twin Cities Metro area while 52 percent note an increased awareness of opportunities in new innovations, technologies, and industries. Investor perceptions of opportunities among women- and minority-owned businesses are least affected by ATC participation, with 14 percent and 12 percent of investors, respectively, citing increased awareness of investment opportunities in these types of businesses. Awareness of investment opportunities in Greater Minnesota increased for nearly 29 percent of investors surveyed.

Table 4.6. Impact of ATC Program on Investor Awareness of Investment Opportunities

Type of Investment Opportunity	Increased Awareness	No Change	No Opinion
In the Twin Cities Metro area	68.2%	22.3%	9.9%
In Greater Minnesota	28.5%	49.6%	21.9%
Among women-owned businesses	13.9%	52.2%	34.3%
Among minority-owned businesses	12.2%	53.5%	34.8%
New innovations, technologies, or industries	52%	32.7%	16.5%

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Over half (52%) of investors reported that their awareness of new technologies and industries has increased as a result of their participation in the ATC program. For those respondents who indicated the specific technologies or industries affected, the most common are biotechnology/healthcare/medical devices (57%) followed by information and communications (17%) (see Table 4.7).

Table 4.7. Distribution of Industries & Technologies for Which Investors Reported Increased Awareness of Investment Opportunities

Technology/Industry	Share of Response*
Agricultural Technology/Organic Farming	3.2%
Alternative Energy/Clean Technology	9.5%
Biotechnology/Healthcare/Medical Devices	57.1%
Information & Communications Technology	17.5%
Other	12.7%

Note: N=63 technologies or industries, and some investors had multiple responses.

One important impact of the ATC program noted in interviews with investors and entrepreneurs, and reported in several survey responses, is that some investors delayed their investment in a QSB when the ATC appropriation was fully issued before year-end. Several informants cited cases in which investors planning to invest in a QSB chose to delay their investment in order to benefit from the subsequent year's tax credit allocation. Delayed investments can affect a QSB's ability to move forward with their business plans, which often are time sensitive. Some entrepreneurs felt this aspect of the tax credit program was a major problem because, after working hard to secure investor commitments and expecting to receive and use this capital, they learned the investment would be delayed for several months or longer.

5

ECONOMIC & FISCAL IMPACTS

Economic Impacts of ATC Program

Investment attributable to the ATC program not only supports hiring and additional spending by QSBs themselves, but also indirectly supports the growth of other Minnesota businesses. The range of economic impacts in Minnesota associated with the ATC program are classified into those comprised of direct employment and direct non-payroll spending by a recipient QSB; other business-to-business purchasing rounds of goods and services among Minnesota firms (indirect); and the spending by those working at Minnesota firms (induced). Combinations of indirect and induced impacts represent “non-direct” impacts.

To estimate the full range of economic impacts in Minnesota attributable to the ATC program, a statewide economic model built by Regional Economic Models, Inc. (REMI), of Amherst, Massachusetts, was used. The Department of Employment and Economic Development (DEED) uses this model to conduct impact analysis of programs, various job creation proposals, and legislative fiscal initiatives. REMI is a dynamic computable general equilibrium (CGE) model that adjusts all variables as impacts are estimated. Once scenario-specific data enters the model, it then simulates changes in sales and purchases among Minnesota businesses; considers how the relative costs on capital and labor are affected under the scenario; how changes in prices affect consumers; government; importers and exporters; and other entities interacting in the regional economy. These interactions produce year-to-year estimates of total economic impacts, composed of direct project impacts as well as *dynamic* indirect and induced impacts.

Many government agencies (including many U.S. state governments), consulting firms, nonprofit institutions, universities, and public utilities use REMI. Articles about the model’s equations and research findings have been published in professional journals such as the American Economic Review, the Review of Economic Statistics, the Journal of Regional Science, and the International Regional Science Review.

5.1.1 QSB Employment Extrapolation

Estimating the full employment impact attributable to the ATC program from 2010-2012 begins with survey-provided information about the relationship between Qualified

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Investment (QI) and attributable employment change.³⁰ Table 5.1 shows that when QI amounts and full-time equivalent (FTE) employment changes are summed across QSBs and then divided into each other, there is an average of \$363,710 in QI for every new manufacturing job and \$213,217 in QI for every new non-manufacturing job among survey respondents.³¹

Table 5.1. QI per FTE by Manuf./Non-Manuf. QSBs Responding to Survey, 2010-2012

	2010-2012 QI	FTE Attributable to QI	2010-2012 QI per FTE
Manufacturing (NAICS 31, 32, 33)	\$30,460,713	83.75	\$363,710
Non-Manufacturing (NAICS 51, 54)	\$21,908,094	102.75	\$213,217
Total	\$52,368,807	186.5	\$280,798

Because direct employment impacts are influenced by the level of investment, this approach allows for more accurate extrapolation than a simple employment impact per firm. And, as expected, the QI associated with a single job is larger for businesses engaged in manufacturing (characterized generally as having more capital—and less labor—intensive production functions) than those not engaged in manufacturing. The process described so far is illustrated below in the first two steps of Figure 5.1.

Figure 5.1. QSB Employment Impact Extrapolation Process



Employment among QSBs Not Responding to the Survey

To estimate the employment impact among QSBs that did not respond to the survey, the Qualified Investment they received from 2010-2012 is first discounted according to estimated “attribution” rates derived in Table 3.14. Doing so yields attributable investment amounts for manufacturing and non-manufacturing QSBs (2010-2012). These amounts are then divided by Qualified Investment per FTE values from Table 5.1 to

³⁰ Question 12 of the business survey asks, “As a direct result of the financing received from the Angel Tax Credit program, has your firm increased its level of employment?” Question 13 then asks, “If YES, what is your estimate of the resulting increase in full time equivalent (FTE) jobs?” By cross-checking responses with reported employment levels in the program database, we can verify that respondents interpreted the pair of questions to mean a three-year change in employment attributable to ATC-induced investment.

³¹ Respondent-provided NAICS codes are used to categorize QSBs into manufacturing or non-manufacturing activities. While QSBs responding to the survey provided more detailed industry information (3-digit NAICS level), sample sizes per 3-digit NAICS are not large enough to support a more detailed extrapolation.

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generate estimated direct employment impacts from QSBs. This process is repeated for Qualified Investment into QSBs that *did* respond to the survey, and is illustrated in the last two steps of Table 5.1. Table 5.2 shows that, after performing the described calculations and combining values (quotients) for responding and non-responding QSBs, ATC-attributable investment resulted in an estimated 102 direct FTE among manufacturing QSBs and 161 direct FTE among non-manufacturing QSBs from 2010-2012.

Table 5.2. Direct Employment Impact (FTE) Attributable to ATC among QSBs Responding to Survey and Not Responding to Survey, 2010-2012

	Manufacturing QSBs	Non-Manuf. QSBs
QSBs Responding to Survey		
Estimated Investment Attributable to ATC	\$7,533,814	\$5,791,128
Qualified Investment per Attributable FTE	\$363,710	\$213,217
Estimated Direct FTE Impact Attributable to ATC	20.7	27.2
QSBs <u>Not</u> Responding to Survey		
Estimated Investment Attributable to ATC*	\$29,666,888	\$28,563,401
Qualified Investment per Attributable FTE	\$363,710	\$213,217
Estimated Direct FTE Impact Attributable to ATC	81.6	134
All Program QSBs		
Estimated Direct FTE Impact Attributable to ATC	102.3	161.2

*Difference of attributable investment amounts in Table 3.13 and Table 3.14

Annual Allocation of Employment Impact

The three-year direct FTE impact must be allocated to individual years for the following economic and tax revenue impact analyses. For QSBs responding to the survey, the total employment impact from Table 5.2 is allocated over each of the program’s first three years according to an inferred pattern of actual FTE change (using annual employment levels from the program database) (see bolded rows in Table 5.3).³²

Table 5.3. FTE among Manuf./Non-Manuf. QSBs Responding to Survey, 2010-2012

	2010 Cert. FTE	2010 FTE	2011 FTE	2012 FTE
Manufacturing (NAICS 31, 32, 33)	14	12	37	81
Allocation of 2012 FTE (row sums to 100%)		0%	36%	64%
Non-Manufacturing (NAICS 51, 54)	26	25	69	202
Allocation of 2012 FTE (row sums to 100%)		0%	25%	75%

³² Allocating a three-year impact across a multi-year interval using employment changes, as opposed to annual QI levels, accounts for an observed lag between the receipt of a QI and a change in FTE.

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As shown in the bolded rows of Table 5.4, the pattern of actual FTE change (annual allocation) among these QSBs is different than the change among QSBs that responded to the survey. This distinction is important because the different patterns among respondents versus non-respondents could reflect a bias if businesses that continually increased their employment during the program (or businesses that did not experience an investment or employment lag) were more likely to (or not to) respond to the survey.

Table 5.4. FTE among Manuf./Non-Manuf. QSBs Not Responding to Survey, 2010-2012

	2010 Cert. FTE	2010 FTE	2011 FTE	2012 FTE
Manufacturing (NAICS 31, 32, 33)	92	71	66	145
Allocation of 2012 FTE (row sums to 100%)		0%	0%	100%
Non-Manufacturing (NAICS 22, 51, 54, 62)	70	38	69	197
Allocation of 2012 FTE (row sums to 100%)		0%	19%	81%

Table 5.5 illustrates the annual allocation of estimated employment impacts for all manufacturing and non-manufacturing QSBs in the program. It is estimated that both manufacturing and non-manufacturing QSBs experience a one-year lag in employment growth resulting from Qualified Investment. These annual values represent the attributable direct employment impacts at active QSBs and comprise the inputs to estimate total economic and tax revenue impacts throughout Minnesota.

Table 5.5. Annual Employment Impact (FTE) among All Program QSBs, 2010-2012

	2010 FTE	2011 FTE	2012 FTE
All Manufacturing QSBs	0	8	95
All Non-Manufacturing QSBs	0	32	129

Final Adjustments to Annual Employment Impact

Before inputting the bolded values from Table 5.5 into the REMI economic model,³³ they are (1) spread across industry NAICS (within the manufacturing and non-manufacturing categories) according to the actual distribution of qualified investment amounts and (2) converted from full-time equivalent (FTE) employment values into headcount employment values using 2009 ratios by industry from the U.S. Bureau of Economic Analysis (necessary because the REMI model is not based on FTE employment).

5.1.2 QSB Non-Payroll Spending Extrapolation

Survey responses concerning incremental non-payroll spending made by recipient QSBs are also extrapolated to the full population of recipient QSB's before modeling their associated economic and tax revenue impacts. Survey recipients were asked about the

³³ See <http://www.remi.com/>.

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share of their capital raised that went toward a variety of expenses, including those related to real estate, the purchasing of equipment, employee salaries, refinancing, and contract services. Respondents also had the option to indicate the share of their capital raised that was not yet spent.

Direct non-payroll spending goes toward real estate (plant expansion), equipment, and contract services; some of this spending is with Minnesota firms. **Importantly, only those purchases from Minnesota vendors are considered for this analysis.** This direct non-payroll spending will also create indirect and induced impacts. To extrapolate non-payroll spending by survey respondents to the full population of QSBs, spending shares are applied to the **sum of leveraged debt investment, leveraged equity investment, and estimated “net new” investment attributable to the ATC** from the bottom rows of Table 3.17 and Table 3.18 in Section 3.6, respectively. Applying survey-provided spending shares to the sum of leveraged and attributable investment into all QSBs, as opposed to total investment raised, effectively discounts resulting economic impacts to remove those that would still have occurred in the absence of the ATC program.

Table 5.6 shows that, from 2010-2012, using capital raised with the ATC program, QSBs spent an additional estimated \$3.7 million on real estate expansion, \$4.3 million on equipment, and \$20.4 million on contract services—all from Minnesota suppliers.

Table 5.6. Non-Payroll Spending Fulfilled in Minnesota by QSBs Responding to Survey and All Program QSBs (\$ thousands), 2010-2012

	Real Estate	Equipment	Contract Services
QSBs Responding to Survey			
Spending in Minn.	\$3,559	\$3,785	\$17,565
Share of All Capital Raised Spent in Minn.	3.5%	4.1%	19%
All Program QSBs			
Total Investment Attributable to ATC		\$106,481	
Share of Investment Spent in Minn.	3.5%	4.1%	19%
Estimated Spending in Minn.	\$3,723	\$4,313	\$20,446

5.1.3 Economic Impacts of QSB Activity

Presumably, QSB employment and its associated economic impacts will continue beyond the initial investment period. To capture these longer-term impacts, direct employment (of Minnesota workers) by all QSBs during the first three years of the program is assumed to decrease through 2020 in order to account for typical firm failure rates among start-ups. Failure/survival patterns vary by start-up year and industry, but U.S. Bureau of Labor Statistics data suggest that it is typical for business counts to fall by 60-70 percent by the eighth year since inception, on average. Because the surviving start-ups generally experience increased employment, it is typical for total employment in an annual cohort

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of business start-ups to fall by only 20-30 percent by the eighth year after inception.³⁴ For this analysis, it is assumed that employment in QSBs will fall by 24 percent from 2012-2020, with annual reductions equaling three percent of 2012 employment levels (see tapered employment in Table 5.7). Actual employment may vary greatly from this typical pattern—either under- or over-performing average rates (think the next Google, for instance)—but given the uncertainty surrounding QSB survival rates, this assumption is considered to provide the most realistic estimate of direct employment levels for the purpose of modeling future economic and fiscal impacts beyond the program offering. While direct employment in QSBs is assumed to persist past 2012, albeit at reduced levels, the additional non-payroll spending (funded with Qualified Investment dollars) targeted to Minnesota vendors is assumed to cease after 2012 because it is not known whether those expenditures were idiosyncratic or typical of annual operating expenses.

Table 5.7. Annual Employment Impact among All Program QSBs, 2013-2020

	2013	2014	2015	2016	2017	2018	2019	2020
All Manufacturing QSBs	95	92	90	87	84	81	78	75
All Non-Manuf. QSBs	145	141	136	132	127	123	118	114

The results summarized in Table 5.8 show that from 2010-2012 ATC-attributable QSB activity is estimated to have supported 98 average annual direct jobs, 316 average annual non-direct jobs,³⁵ and an average annual population change of 114 within Minnesota.³⁶ This 2010-2012 total employment impact (direct plus non-direct) is associated with \$243.1 million in extra business sales (output), \$140.8 million in value added, and \$70.9 million in labor income within Minnesota (in fixed 2012 dollars).³⁷

³⁴ See Bureau of Labor Statistics, Establishment Age and Survival Data, Table 7 ("Survival of private establishments by opening year"). State-level data are available each year since 1994, but with no industry detail. See <http://www.bls.gov/bdm/bdmage.htm#national>.

³⁵ Non-direct employment reflects that generated by the multiplier effect (i.e., indirect and induced jobs in other firms and industries supported by QSB spending and the spending of QSB employees).

³⁶ Population changes in the REMI model are predominantly motivated by changes in (i) net flows of economic migrants (those who are working age men and women, a portion of whom have children) and (ii) cohort aging algorithms. A net inflow of workers (i) only happens after labor force participation rates (among the resident working age population) adjust and background commuter behavior responds to job activity somewhere. If these two events occur and there is still a dearth of labor supply given job growth, real wages and relative employment opportunities remain elevated until more working age people are "signaled" to relocate in.

³⁷ Labor income includes wage and salary earnings as well as fringe benefits. And in addition to labor income, value added includes taxes on production and imports less subsidies as well as gross operating surplus. (Put another way, value added is equal to industry output less its intermediate inputs, i.e., its contribution to gross domestic product.) This is important because, while state tax revenue from angel investment returns are not captured in REMI, gross operating surplus includes corporate profits that *do* generate tax revenue.

Table 5.8. Attributable Total Economic Impact of QSB Activity in Minnesota (\$2012 thousands), 2010-2020

Time Period	Avg. Annual Direct Employment	Avg. Annual Non-Direct Employment	Business Sales (Output)	Value Added	Labor Income	Average Annual Population
2010-2012	98	316	\$243,104	\$140,778	\$70,908	114
2013-2020	215	420	\$1,236,022	\$704,254	\$380,157	543
2010-2020	183	392	\$1,479,126	\$845,032	\$451,065	426

Incorporating the firm failure assumption through 2020 for each of the QSB NAICS that added direct employment, it is estimated that from 2013-2020 their activities will support 215 average annual direct jobs, 420 average annual non-direct jobs, and an average annual population change of 543. This employment impact is associated with \$1.2 billion more in business sales, \$704.3 million more in value added, and \$380.2 million more in labor income (in fixed 2012 dollars) (see Table 5.8).

Fiscal Impacts of ATC Program

Attributable QSB activity leading to the above economic impacts in Minnesota is also associated with new state revenue and new state expenditures. The REMI model also estimated the public budget flow changes associated with the economic impact analysis. The estimated result is that recipient QSBs catalyzed the generation of approximately \$8.2 million in Minnesota revenue from 2010-2012 and approximately \$40.5 million from 2013-2020, for a 10-year total of \$48.7 million.³⁸ It was also estimated that state expenditures would decrease by approximately \$7.1 million from 2010-2012 but will increase by \$32 million from 2013-2020, for a 10-year change of \$24.8 million.³⁹ When considering the combination of revenue and expenditure changes, the estimated impact on the Minnesota state budget is a net gain of \$15.4 million during the 2010-2012 period, \$8.5 million from 2013-2020, and \$23.9 from 2010-2020 (see Table 5.9).

³⁸ The revenue increase modeled in REMI included income tax (35% of the net increase), general sales tax (19%), federal funds (17%), selective sales taxes (12%), charges for services (9%), miscellaneous nontax revenue (7%), corporate tax (5%), license taxes (4%), other taxes (4%), and insurance trust revenue (-12%).

³⁹ The short-term decline in state expenditures is due to a fall in public welfare expenditures. Changes over the full 10 years include spending on education (103% of the net increase), highways (17%), administration (7%), health (5%), natural resources (4%), corrections (4%), interest (4%), police (3%), hospitals (3%), utilities (1%), other (21%), insurance trust expenditure (-24%), and public welfare (-53%).

Table 5.9. Annual Attributable State Revenue Impact of QSB Activity in Minnesota (\$2012 thousands), 2010-2020

Time Period	State Revenue	State Expenditures	Net Impact on State Budget
2010-2012	\$8,236	-\$7,149	\$15,385
2013-2020	\$40,480	\$31,968	\$8,512
2010-2020	\$48,716	\$24,819	\$23,897

Revenue from Qualified Investor Income

Importantly, income tax revenue on Qualified Investor income (i.e., returns to the angel investors on their Qualified Investment) is not captured in the REMI model. As a result, that revenue is not included in Table 5.9 or the forthcoming cost effectiveness analysis presented in Table 5.12. Because Qualified Investment cannot be introduced into the REMI model, the model does not estimate returns on those financial investments or the associated tax revenue. We estimate that Qualified Investors earned no return on their investment in the program’s first three years as 2007 research finds that, among 539 group-affiliated North American angels experiencing exits (acquisitions or initial public offerings), investments held for three years or less provided no returns.⁴⁰

From 2013-2020, we estimate that as much as \$8.1 million in Minnesota tax revenue could be collected on Qualified Investor income from their attributable ATC investments. This estimate is based on a finding from the same research cited above that indicates an average return of 160 percent on angel investments held for an average period of 3.5 years. Importantly, there is potential for inaccuracy and bias in the return data from the study referenced as it was self-reported by angel investors. The 160 percent average return was also influenced by very large reported returns from a small number of investments and thus (a) this estimate has a large standard error and (b) there is more likelihood actual angel returns could vary considerably from this amount.

Cost Effectiveness of ATC Program

From a state budget standpoint, the overall cost effectiveness of Minnesota’s Angel Tax Credit program’s first three years is considered using a benefit-cost approach, i.e., a weighing of the program’s total state tax revenue impact against its total state tax revenue loss. For the purpose of this analysis, new revenue generation (benefit) includes:

1. Tax revenue generated (through 2020) from attributable QSB activity, as estimated previously, and

⁴⁰ Robert Wiltbank and Warren Boeker, November 2007, *Returns to Angel Investors in Groups*, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1028592.

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Sources of tax revenue loss (cost) include:

2. Annual tax credit allocation from 2010-2012 and tax revenue that would have been received from investment income earned on alternative investments by qualified investors, which is estimated using a combination of survey information regarding alternative uses of the qualified investment dollars (i.e., had the program not existed), market indices of average returns by investment type, and Minnesota tax tables.
3. Table 5.10 provides average annual investment returns by investment type and a total annual return weighted by survey response shares as well as the share of actual Qualified Investment made by investors living in Minnesota (thus excluding income that is not taxable).

Table 5.10. Average Annual Investment Returns by Investment Type, 2010-2020

Investment Type	Average Annual Return				
	2010	2011	2012	2013	2014-2020*
Publicly Traded Equities	17.5%	1.1%	16.4%	33.5%	8.1%
Taxable Fixed Income	6.5%	7.8%	4.2%	-2%	4.6%
Tax-Exempt Fixed Income	2.4%	9.3%	5.2%	-2.6%	3.7%
Cash/Money Market	.06%	.01%	.02%	0%	1.7%
Other Angel Investments**	0%	0%	0%	0%	160%
Spent Funds	0%	0%	0%	0%	0%
Weighted Return	10.9%	1.7%	9.9%	18.6%	5.3-23.5%

Source: Dow Jones U.S. Total Stock Market Index, Barclays Capital Aggregate Bond Index, Fidelity Minnesota Municipal Income Fund, Barclays Capital Minnesota Municipal Bond Index, Fidelity Cash Reserves, and Wiltbank and Boeker 2007 (see footnote).

*Based on average returns over past 10 years (2004-2013), except for angel investments.

**Based on Wiltbank and Boeker research indicating average returns of 160 percent for angel investments three-and-a-half years from the time of investment. A one-time 160 percent return was applied and weighted for the share of alternative investments in each of the first three years of the program that went toward other angel investments, in Minnesota and not in Minnesota. These one-time gains were applied in 2014, 2015, and 2016, corresponding to the fourth year after the angel investment (rounded from the 3.5-year period from the study).

Forgone revenue was estimated based on investor survey responses about how they would have used ATC funds had the tax credit not existed, as well as historic data on investment returns for these alternative assets held.⁴¹ Because there were no data on how investors expected to reinvest their capital gains and earnings, these calculations ignore taxes on compounded investment returns and thus may somewhat underestimate

⁴¹ Estimating returns on alternative investments for Qualified Investors assumes that, despite their evident preference for investments with higher-than-average risk (e.g., angel investments), they would have earned average returns on conventional investment types such as equities, fixed income, and money markets.

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forgone tax revenues. Weighted average annual investment returns by year are applied to the total amount of ATC-attributable investment made by Minnesota residents (investment income by non-resident investors would be taxed in their home state not Minnesota) by year to arrive at annual estimated returns on alternative investments (see Table 5.11). Minnesota income tax rates are then applied to estimated returns to yield estimated state tax revenue of nearly \$50,000 in 2010, \$29,377 in 2011, nearly \$328,000 in 2012, nearly \$1 million in 2013, and a cumulative \$4.38 million from 2014-2020.

Table 5.11. Estimated Alternative Investment Returns and Minnesota Income Tax Revenue, 2010-2020

Investment Type	2010	2011	2012	2013	2014-2020
Weighted Return from Table 5.10	10.9%	1.7%	9.9%	18.6%	5.3-23.5%
Cumulative ATC-Attributable Investment (Minnesota taxable basis)	\$11.67 mil.	\$33.18 mil.	\$51.46 mil.	\$51.46 mil.	\$51.46 mil.
Estimated Return	\$634,332	\$374,223	\$4.18 mil.	\$9.57 mil.	\$44.45 mil.
Minnesota Income Tax Rate*	7.85%	7.85%	7.85%	9.85%	9.85%
Estimated Forgone State Revenue	\$49,795	\$29,377	\$327,749	\$942,526	\$4.38 mil.

*Rates in 2010-2012 are based on Minnesota income tax rates for the uppermost bracket (see http://www.revenue.state.mn.us/individuals/individ_income/Pages/Minnesota_Income_Tax_Rates_and_Brackets.aspx); rates for 2013 and subsequent years are based on e-mail correspondence with the Department of Revenue.

In Table 5.12, the net impact on the state’s budget (i.e., budget benefit, or revenue impact minus expenditure impacts) from attributable QSB activity is restated for the program’s first three years and then added to the value of benefits during the 2013-2020 revenue benefit (presented previously in Table 5.9). To reflect the present value in 2012, benefits occurring *after* 2012 are discounted at an annual rate of 5 percent and benefits occurring *prior* to 2012 are compounded at the same rate.⁴² Doing so allows us to consider the estimated impacts of QSB activity occurring in years after businesses received their Qualified Investments in our benefit-cost accounting. From 2010-2012, QSB activities attributable to the ATC program catalyzed an estimated \$15.6 million in Minnesota budget benefit in present value terms; from 2013-2020, attributable QSB activities are expected to catalyze an additional \$9.2 million. When combined, the total budget benefit of attributable QSB activities is estimated at \$24.9 million (all in fixed 2012 dollars).

⁴² Equal to the interest rate on Minnesota bonds sold October 24, 2013 (see <http://www.beta.mmb.state.mn.us/doc/bonds/statement-general/13oct-pos.pdf>).

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According to annual reports to the Minnesota Legislature on the Angel Tax Credit Program, a total of \$34.2 million in credits were issued from 2010-2012.⁴³ When both cost elements are combined—those from tax credit allocations issued (expended) and foregone state tax revenue on alternative investment income—the total three-year cost to the state budget equals \$36.1 million in present value terms; the 2013-2020 revenue cost is estimated at \$4.55 million, for a ten-year total of \$40.7 million.

Table 5.12. Present Value in 2012 of Budget Benefits and Costs of ATC Program (\$2012 thousands)

Time Period*	Budget Benefit from Program (revenue - costs)	Budget Cost		Total Benefit	Total Cost	Benefit-Cost Ratio
		Tax Credit Allocation	Alternative Investment			
2010-2012	\$15,645	\$35,716	\$413.5	\$15,645	\$36,130	0.43
2013-2020	\$9,238	\$0	\$4,545**	\$9,238	\$4,545	2.03
2010-2020	\$24,883	\$35,716	\$4,958	\$24,883	\$40,675	0.61

*Future benefits and costs are discounted back at an annual rate of 5 percent to reflect the present value in 2012 (and 2010-2011 benefits and costs are compounded forward).

**Taxable investment is first adjusted by the average share of total Qualified Investment made by Qualified Investors living in Minnesota, as income earned by out-of-state investors is generally not taxable.

In summary, most of the program’s benefits will occur after its first three years while most of its costs occurred during its first three years. This is illustrated by a benefit-cost ratio of less than one during the first three years, a ratio of 2.03 during the 2013-2020 period, and an overall ten-year ratio of 0.61. What this means is that the program does not pay for itself within ten years or, in other words, the state will have earned an estimated \$0.61 for every \$1.00 it forwent in offering ATCs.

⁴³ Minnesota Angel Tax Credit Program 2010 Annual Report, 2011 Annual Report, and 2012 Annual Report (see <http://mn.gov/deed/business/financing-business/tax-credits/angel-tax-credit/forms.jsp>).

Critical Parameters and Sensitivity

Cost effectiveness of the ATC program is sensitive to several critical parameters. Firstly, because the amount of attributable and leveraged investment was estimated using surveys, the existence of biases like those discussed in Chapter 2 could raise or lower the program's economic and fiscal impacts. If attribution were lower than the estimated 52 percent over three years, for instance, resulting impacts would be lower. If QSBs were able to leverage more than what survey responses revealed, however, impacts could be higher. Secondly, future benefits deriving from attributable QSB activities could be higher or lower than estimated depending on firm failure and growth rates. If QSBs survive or grow at higher-than-average rates, their activity will generate more revenue for the state, but if they underperform, their associated benefits will be less than those estimated above.

Aside from benefits stemming from QSB activities, the program's impact could be higher than that estimated if tax revenue on Qualified Investor income were included. If the upper-limit estimate of \$8.1 million from 2013-2020 (\$7 million in 2012 present value) is included, the program is slightly more cost effective than estimated above, with a ten-year benefit-cost ratio of 0.78. Because the magnitude of the ATC's budget benefit is affected not only by *direct* employment and spending by active QSBs, the means for identifying *non-direct* macroeconomic impacts also influences the program's cost-effectiveness, both in terms of how REMI captures changes in state revenue and expenditures.

On the cost side of Table 5.12, foregone revenue on alternative investment income could be higher or lower than estimated, depending largely on the future performance of financial markets. If alternative investments produce higher-than-average returns in future years, the program will become less attractive as the potential revenue earned represents an opportunity cost of offering the ATC program. As stated previously, estimates of returns on these alternative investments assume that, despite angels' evident preference for investments with higher-than-average risk, Qualified Investors would have earned average returns on conventional investment types. If, however, investments produce relatively low returns, the program will look better from a budget standpoint. Given the extent of future unknowns, the analysis presented is believed to provide the most realistic and fact-informed estimate possible.

6

ALTERNATE USE ANALYSIS

In this chapter, the economic, population, and fiscal impacts of the ATC program (presented in the previous chapter) are compared to the estimated impacts of a hypothetical increase in the research and development (R&D) tax credit (again using the REMI model).⁴⁴ The amount by which the R&D credit is increased equals the value of ATC credits issued (i.e., 25 percent of annual Qualified Investment): \$7 million in 2010, \$15.8 million in 2011, and \$11.4 million in 2012.

In order to maintain equivalency (as close as possible) when estimating a hypothetical increase in the R&D tax credit allocation with the resources used for the ATC program, two adjustments to annual R&D credit allocation benefit are made before modeling their associated impacts:

1. Because companies receiving R&D credits may also leverage additional investment as QSBs said they had done during the first three years of the ATC program, the value of a hypothetical R&D tax credit authority is increased by the same leverage shares discussed in Chapter 3 (and summarized in Table 3.17 and Table 3.18). Beneficiaries of R&D credits are well-established businesses and not early-stage startups like those receiving angel investment, however, so the relative amount of investment attributable to (and leveraged with) R&D credits could be different than that associated with the ATC.
2. Because state taxes are deductible in calculating federal taxes, about one-third of the reduction in state tax liability will be offset by an increase in federal tax.⁴⁵ The Department of Revenue estimates that 70 percent of the current credit is claimed by corporations and 30 percent by flow-through entities (S-corporations and partnerships). Almost all of the added credit going to corporations will go to businesses in the 34 percent or 35 percent corporate tax brackets. Almost all of the added credit going to flow-through entities will be added to the taxable income of owners who are in the top individual income tax brackets (33% and 35% during the 2010-2012 period). For this reason, the value of the R&D credit (plus leveraged funds) considered for the modeling is reduced by one-third.

Increasing the R&D credit allocation has the effect of reducing the unit cost of labor (without

⁴⁴ Initially, a second hypothetical investigation on lowering the corporate franchise tax was to be performed. However, due to the structure of the Minnesota tax (based on 100% sales-apportionment) and the inconsistency of how that tax is carried (structured) in the REMI model, we could not explore this case quantitatively.

⁴⁵ The benefits of the ATC are also partially offset by higher federal tax liability. Answers to survey questions reflect the impact of the net change in state and federal taxes combined, however, so the impact of the federal tax offset is already accounted for in survey responses.

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affecting employee compensation) for businesses as they typically apply the credit to payroll expenses. This hypothetical increase in the R&D tax credit allocation is spread across industries according to a derivative of the distribution in Table 6.1, which is based on actual R&D credit utilization in 2010 and 2012.⁴⁶ Credit utilization for 2011 is excluded in order to test the sensitivity of a change in Minnesota’s R&D tax credit law after 2010. The analysis first uses the 2010 R&D industry utilization distribution (more evenly split between manufacturing and services) and then the 2012 distribution (more skewed toward manufacturing).

Table 6.1. R&D Tax Credit Utilization by Industry

Industry	2010	2012
Manufacturing	54%	87%
Professional, Scientific & Tech. Services	46%	13%
Total	100%	100%

Comparison of Alternate Use: R&D Credit

A hypothetical increase in the R&D credit allocation—if based on the actual 2010 credit distribution (Scenario 1)—could support a model estimated 116 average annual jobs (a population change of 60), which is associated \$52.2 million in business sales, \$30.9 million in value added, \$19 million in labor income, \$1.8 million in state revenue, and -\$3.2 million in state expenditures from 2010-2012, for a net budget impact of \$4.9 million (in fixed 2012 dollars) (see Table 6.2). If based on the actual 2012 credit distribution (Scenario 2), a hypothetical increase in the R&D credit allocation could support a model estimated 99 average annual jobs and a population of 56, which is associated \$49.4 million in business sales, \$28.1 million in value added, \$16.5 million in labor income, \$1.9 million in state revenue, and -\$2.1 million in state expenditures from 2010-2012, for a net budget impact of \$4 million (in fixed 2012 dollars).

Table 6.2. Economic & Fiscal Impacts of Alternate Uses (\$2012 thousands), 2010-2012

Scenario	Average Annual Jobs	Business Sales (Output)	Value Added	Labor Income	Pop	State Revenue	State Expend	Net Fiscal Impact
Angel Tax Credit	414	\$243,104	\$140,778	\$70,908	114	\$8,236	-\$7,149	\$15,385
R&D Scenario 1	116	\$93,872	\$54,963	\$41,656	60	\$1,774	-\$3,170	\$4,944
R&D Scenario 2	99	\$49,439	\$28,076	\$16,510	56	\$1,919	-\$2,075	\$3,994

The reason for the slightly muted impacts under R&D Scenario 2 relative to Scenario 1 is that there is a limit to the benefit of reducing unit labor costs (as a more generous R&D

⁴⁶ Tax credit utilization is down-allocated further to the various types of manufacturing industries but, in order to preserve the confidentiality of individual firms, this distribution is not published.

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tax credit would signify) among manufacturers. This is the result of manufacturing being more capital intensive than professional, scientific, and technical services firms (which are generally more labor intensive). While manufacturing activities can have relatively larger multiplier effects than services firms do, the realization of those effects is predicated on a significant portion of their capital goods supply-chain being present within Minnesota. If it is not, then part of the multiplier effect is lost to out-of-state economies.

Limiting Comparison of Alternate Uses to 2010-2012 Period

While economic and fiscal impacts from the ATC program are estimated through 2020 in Chapter 5, there are two primary reasons why modeling long-term impacts from an increase in the R&D tax credit would lead to an unfair comparison:

Firstly, as explained previously, although the hypothetical increase in the amount of R&D credit authorization is adjusted to include an estimate of leveraged dollars (to achieve parity with the ATC), the value put to an alternate use is reduced by one-third to reflect the fact that about one-third of the reduction in state tax liability will be offset by an increase in federal tax. (Also explained previously, the impact of the federal tax offset for the ATC is already accounted for in survey responses.) This adjustment necessarily reduces the direct and non-direct impacts of an increase in R&D spending.

Secondly, lacking the resources necessary to conduct a separate survey of Minnesota companies receiving R&D tax credits about how the credit helped their establishments grow, REMI was used to estimate its direct impacts. If these firms were surveyed, self-reported direct firm-level increases (e.g., deploying more labor than capital, or new sales tied to product launches in new markets) would provide the direct effects for entry into the modeling and would alter impacts in the 2013-2020 period.

6.1.1 Cost Effectiveness of Alternate Uses

As shown previously in Table 5.12, during the first three years of the ATC program, the state earns an estimated \$0.43 for every \$1.00 it spends. In offering more R&D credits, the state would have earned an estimated \$0.12-0.14 on the dollar, depending on the mix of industries claiming the R&D tax credit in 2010 and 2012. These ratios are based on total R&D benefits of \$4.2-5.2 million and a total cost of \$35.7 million (see Table 6.3).

Because the alternative investments assumed to have happened in the absence of the ATC program would happen in a scenario of increased R&D credit availability, foregone revenue on the returns of these investments is not included as a cost for this alternate use of ATC funds.

Table 6.3. Present Value in 2012 of Budget Benefits and Costs of ATC Program and R&D Credit Expansion (\$2012 thousands), 2010-2012

Scenario	Total Benefit	Total Cost	Benefit-Cost Ratio
Angel Tax Credit	\$15,645	\$36,130	.43
R&D Scenario 1	\$5,159	\$35,716	.14
R&D Scenario 2	\$4,180	\$35,716	.12

*Future benefits and costs are discounted back at an annual rate of 5 percent to reflect the present value in 2012 (and 2010-2011 benefits and costs are compounded forward).

6.1.2 Consideration of Corporate Franchise Tax Rate Reduction

Estimated impacts of a hypothetical reduction in Minnesota’s corporate franchise tax rate (by an amount equivalent to the 2010-2012 ATC allocation) are not provided as part of this evaluation. Other investigations of proposals to reduce taxes on businesses using REMI have assumed that tax cuts would reduce production costs (e.g., payroll tax, equipment tax, property tax, corporate income tax). With lower production costs relative to costs in other states, there is an increased incentive to expand business investment within the state providing the tax rate reduction. But due to the structure of Minnesota corporate franchise tax (100 percent sales-apportioned), this model response would be inappropriate.

For multistate businesses, the portion of profits that are taxable by a particular state is determined by apportionment rules. Traditionally, profits have been apportioned using three factors:

1. The share of the corporation’s property that is located in the state;
2. The share of the corporation’s payroll that is located in the state; and
3. The share of the corporation’s sales made to customers in the state.

In contrast, Minnesota’s apportionment rules are based *only* on the share of sales made to customers in the state. As a result, in-state property and payroll—both of which affect production costs—have no direct impact on corporate tax liability. For this reason, it is not appropriate to model a cut in corporate tax rates as a reduction in production costs. We are unaware of appropriate methodologies for analyzing a reduction in a 100 percent sales-apportioned tax rate and, in the absence of a detailed study to investigate such complexities, a precise response to this inquiry is currently indeterminate. However, we do know that the impact of a cut in the corporate tax rate will be smaller than it would be if the apportionment rules included the production cost factors noted above (i.e., payroll and property). It is also likely that the impact of a corporate tax rate reduction on Minnesota employment and output would be smaller than an equal-cost increase in R&D credits, because an expansion of these credits clearly reduces Minnesota production costs relative to other states.

6.1.3 Summary

When compared to offering more R&D tax credits, the ATC program is estimated to have resulted in the largest economic and fiscal impacts from 2010-2012. However, there is a possibility that estimated impacts of an equivalent increase in R&D credit would be higher if firms receiving credits were surveyed separately about their attributable hiring, spending, and leveraging. As mentioned previously, it is also likely that the impact of a corporate tax rate reduction on Minnesota employment and output would be smaller than an equal-cost increase in R&D credits.

7

ANALYSIS OF INVESTMENT DISPARITIES

This chapter addresses disparities in the use of the ATC across Minnesota. It focuses on geographic disparities, particularly between the Twin Cities Metro area and Greater Minnesota, but also considers the differential use of the ATC among white male-owned businesses and those owned by women and minorities. The chapter is divided into four parts. First, it describes disparities in ATC use based on an analysis of program data. In the next section, secondary data on indicators and drivers of demand for angel investment are analyzed to determine if geographic differences in these “demand side” factors explain geographic disparities in ATC use. The third section discusses other potential contributors to disparities based on interviews with angel investors and economic development professionals across Greater Minnesota. Finally, conclusions on the likely causes of disparities and options to address them are presented.

ATC Investment Patterns

7.1.1 Geography of Investment Activity

As shown in Table 7.1, Qualified Investment is highly concentrated in QSBs located within the seven-county Twin Cities Metro area.⁴⁷ For the program’s first three years, over 90 percent of the value of Qualified Investment (QI) went to QSBs located within the Twin Cities Metro, with the remaining 9.8 percent invested in firms located in Greater Minnesota.⁴⁸ This division also varies across years, with metro area QSBs gaining the smallest share of investment in 2011 (84.7%) and the largest share in 2010 (97.6%).

Table 7.1. QI Value by Year for QSBs Located in Twin Cities Metro Area and Greater Minnesota (\$ thousands), 2010-2012

Year	Twin Cities Metro QI	Greater Minnesota QI	Twin Cities Metro Share
2010	\$27,357	\$663.2	97.6%
2011	\$53,762	\$9,710	84.7%
2012	\$43,885	\$3,266	93.1%
Total	\$125,003	\$13,640	90.2%

⁴⁷ Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties

⁴⁸ In considering geographic disparities in ATC investment, it is important to note that while 164 QSBs are headquartered in the Twin Cities Metro area, 27 (16%) have operations in Greater Minnesota, meaning ATC investment into these businesses may or may not be put to use in multiple locations. Using program data, the extent to which investments in Greater Minnesota QSBs are supporting operations in the Twin Cities Metro area is also intractable.

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Within the metro area itself, investment was further concentrated among firms located in Hennepin County. Table 7.2 shows the distribution of Qualified Investment value by the county location of the recipient QSB from 2010 to 2012. Although these data are incomplete since no county was indicated for records representing almost \$25 million in Qualified Investment, it shows that Hennepin County businesses received at least 57.7 percent of metro area Qualified Investment and 51.6 percent of the full statewide Qualified Investment amount.⁴⁹ All seven metro area counties have QSBs that received Qualified Investments and five of the seven counties were home to QSBs that received at least \$3 million in Qualified Investment. Five metro area counties (Carver, Dakota, Hennepin, Ramsey, and Washington) had five or more QSBs that received investments.

Table 7.2. Qualified Investment Value by County and Year (\$ thousands), 2010-2012

County	2010	2011	2012	All Years
Anoka		\$4,000		\$4,000
Benton			\$400	\$400
Blue Earth	\$520	\$167		\$687
Carver		\$983	\$2,701	\$3,684
Dakota	\$1,073	\$2,890	\$2,170	\$6,133
Dodge	\$200	\$80	\$375	\$655
Hennepin	\$12,075	\$28,251	\$31,201	\$71,527
Mower	\$70	\$50	\$150	\$270
Olmsted	\$822.5	\$1,696	\$125	\$2,644
Ramsey	\$2,189	\$2,690	\$6,770	\$11,650
Rice		\$2,400	\$600	\$3,000
Scott			\$1,227	\$1,227
Sherburne		\$180	\$360	\$540
St. Louis		\$35	\$102.5	\$137.5
Steele		\$4,025		\$4,025
Washington	\$1,720	\$83	\$10	\$1,813
Winona		\$1,000		\$1,000
Wright	\$210	\$71	\$146	\$427
No County Indicated	\$9,140	\$14,871	\$812.5	\$24,824
Total	\$28,020	\$63,472	\$47,151	\$138,643

Note: Twin Cities metro area and Greater Minnesota totals may not equal totals in Table 7.1 due to rounding.

The county data also reveal that few counties in Greater Minnesota received any Qualified Investments and most of the investment outside the Twin Cities Metro area

⁴⁹ Hennepin County’s actual share is likely higher since these figures omit the firms for which a county is not indicated.

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went to a single region (see Table 7.3).⁵⁰ Eleven of the 80 counties in Greater Minnesota received Qualified Investments—about one in seven. Most of the tax credit investment in Greater Minnesota went to firms in the Southeast Region. This region has seven QSBs in six counties that received \$11.6 million in Qualified Investment, or 84 percent of Greater Minnesota Qualified Investment and 11.6 percent of statewide Qualified Investment with a county indicated.⁵¹ Outside the Twin Cities metro area and the Southeast region, another five counties in three regions (Central, South Central, and Northeast) had five QSBs that obtained Qualified Investment totaling \$2.2 million.

Table 7.3. QSBs and Qualified Investment by Region (\$ thousands), 2010-2012

Region	Total Number of QSBs That Received QIs*	Qualified Investment
Northeast	2	\$137.5
Northwest	0	
West Central	0	
North Central	0	
Central	2	\$1,367
Southwest	0	
South Central	1	\$687
Southeast	7	\$11,594
Twin Cities	102	\$100,034
No County Indicated	37	\$24,824
Total	195	\$ 137,139

*Total of unique businesses over all three program years

Note: Twin Cities metro area and Greater Minnesota totals may not equal totals in Table 7.1 due to rounding.

7.1.2 Geography of Investment by Industry

When considering investment disparities by industry, for all but two DEED-assigned industries (clean technology and healthcare services), virtually all of the ATC investment went to firms located in the Twin Cities metro area. For ten industries, the entire Qualified Investment from 2010-2012 went to QSBs located in the metro area while Greater Minnesota QSBs in only seven of the 17 industries received Qualified Investment (see Table 7.4).

⁵⁰ Regional definitions are based on the Small Business Development Center Regions (see http://www.positivelyminnesota.com/Business/Get_Help_from_Our_Experts/Small_Business_Development_Centers/Find_a_SBDC_Near_You.aspx).

⁵¹ There is \$935,000 of Qualified Investment in Greater Minnesota without a county indicated. If this amount occurred outside the Southeast region, then the Southeast share of Greater Minnesota Qualified Investment drops to 79 percent. On the other hand, if the Southeast region received this investment, its share grows to 85 percent.

Table 7.4. Qualified Investments in Twin Cities Metro and Greater Minnesota by Industry (\$ thousands), 2010-2012

Industry	QI in Twin Cities Metro QSBs	QI in Greater Minnesota QSBs	Twin Cities Metro Share of Total QI
Biotechnology	\$22,049	\$2,237	90.8%
Clean Technology	\$11,467	\$7,565	60.3%
Consumer Products and Services	\$3,201		100%
Electronics/Instrumentation	\$4,375	\$427	91.1%
Food/Drink	\$1,902	\$50	97.4%
Healthcare Services	\$3,423	\$2,019	62.9%
Industrial Energy	\$430		100%
Internet/Web Services	\$3,603		100%
IT Services	\$6,651		100%
Marketing/Advertising	\$3,240		100%
Medical Devices and Equipment	\$28,909	\$942	96.8%
Networking and Equipment	\$1,208		100%
Other	\$1,310		100%
Retailing/Distribution	\$1,988		100%
Software	\$27,130	\$400	98.5%
Telecommunications	\$105		100%
Travel	\$400		100%
Unassigned	\$3,614		100%
Total	\$125,005.00	\$13,640	90.2%

Note: Twin Cities metro area and Greater Minnesota totals may not equal totals in **Table 7.1** due to rounding.

Among these seven industries, clean technology had the largest amount and share of Greater Minnesota investment. Almost \$7.6 million in clean technology Qualified Investment went to firms in Greater Minnesota; this accounted for 39.7 percent of Qualified Investment made in this industry and over half (55.5%) of the value of total Qualified Investment made in Greater Minnesota. Biotech and health services were the next most invested in industries in Greater Minnesota, with Qualified Investment totals of \$2.2 million and \$2 million, respectively. Moreover, in health services, Greater Minnesota companies captured over 37 percent of the value of the industry’s statewide Qualified Investment.

7.1.3 Investment in Women- and Minority-Owned QSBs

Women- and minority-owned QSBs received a relatively small amount of Qualified Investment during the ATC program’s first three years. Table 7.5 shows that, from 2010-2012, women-owned businesses received \$2.9 million in Qualified Investment, or 2.1

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percent of total program investment. During the same period, minority-owned businesses received \$1.4 million in Qualified Investment, or 1 percent of total program investment.

Table 7.5. Investment in Women- and Minority-Owned QSBs, 2010-2012

Year	Investment in WOBs	WOB Share of All Investment	Investment in MOBs	MOB Share of All Investment
2010	\$355,000	1.3%	\$1,000,000	3.6%
2011	\$685,000	1.1%	\$125,000	0.2%
2012	\$1,858,940	3.9%	\$275,000	0.6%
All Years	\$2,898,940	2.1%	\$1,400,000	1%

As discussed previously in Chapter 4, awareness of investment opportunities in women-owned businesses increased for only 13.9 percent of surveyed investors as result of the ATC program. In a 2007 article published in the *Journal of Business Venturing*, however, the authors find that women-owned businesses have an equal probability of receiving angel investment but seek investment “at rates substantially lower than that of men.”⁵² Interestingly, the authors also find that women-owned businesses are also more likely than male-owned businesses to seek investment from female angels. Relatively low levels of Qualified Investment in women-owned businesses from 2010-2012 may therefore reflect their lack of demand for angel financing and/or a lack of female angels in Minnesota, rather than insufficient marketing to Qualified Investors.

Demand Drivers for Angel Investment

The ability to attract angel investment capital and utilize the ATC program depends on a region’s capacity to generate new ventures with the growth prospects and potential to meet the investment return objectives of angel investors. Differences in generating the types of enterprises that create opportunities and demand for angel investment could possibly explain the large disparity in the deployment of ATCs between Greater Minnesota and the Twin Cities metro area. Since exact data on the number and nature on new ventures in these two geographies is not available, this section uses secondary data sources that provide proxies or potential indicators for sources of new high growth ventures to help assess the potential contribution of demand side conditions in the disparity of ATC investment between these two regions. Three demand side indicators are discussed:

1. **Patent activity.** Since the ATC program is explicitly focused on directing capital to new enterprises that are commercializing proprietary intellectual property (IP),

⁵² John R. Becker-Blease and Jeffrey E. Sohl, 2007, “Do women-owned businesses have equal access to angel capital?,” *Journal of Business Venturing* 22: 503-521.

patent activity provides one indicator of the intellectual property resource or “raw material” generated in each region to support new IP-based ventures. Patents are not a perfect indicator for regional access to IP resources: they are not the only form of IP that can support new enterprises and IP need not be commercialized in the region in which an invention is created. Nonetheless, patents are indicative of a region’s stock of IP and the most geographically proximate technology resources for new venture development.

2. **The existing base and growth in targeted and key ATC industries.** Entrepreneurs often emerge from existing companies, creating new spinoff businesses that draw on knowledge, expertise, business relations, and opportunities identified through their work within an industry. Growth within these industries suggests expanding opportunities that may help to spur spinoff enterprises. Consequently, pattern of existing firm activity, their employment, and recent growth between the Twin Cities region and Greater Minnesota (for the industries targeted for ATC investment and those that utilized the credit) may help explain the gap in ATC use between these two areas.
3. **Self-employment activity in targeted and key ATC industries.** Self-employment activity is an indicator of entrepreneurial activity and can be a precursor to the creation of new incorporated businesses seeking angel investment. Consequently, differences in the size and recent growth in self-employment activity in industries targeted for ATC investment and those that received most of the ATC may explain the discrepancies in ATC use between Greater Minnesota and the Twin Cities metro area

7.1.4 Patent Activity

As shown in Table 6.5, Minnesota’s new patents are highly concentrated in the Minneapolis-Saint Paul Metropolitan Statistical Area (MSA). More than four out of every five (81.7%) new patents generated in Minnesota from 2000-2011 were filed by inventors within the Twin Cities metro area. The metro area’s share of state patents is slightly smaller than the share of ATC accruing to the metro area (89.4%), but it is fairly close and within the same magnitude.

Although patents are only one factor in new venture creation, the close correlation between patent concentration and ATC concentration suggests that differences in patents and other IP resources may be a key contributing factor in the disparity in ATC use between Greater Minnesota and the Twin Cities region.⁵³

⁵³ The metro share of patents does not vary much for years closer to the ATC program. The metro share from 2009-2011 was 79.1 percent and for five years prior to the program, assuming a several year lag in commercialization of new patents, was 80.4 percent.

Table 7.6. Patents Issued to Inventors in Minnesota and the Minneapolis-Saint Paul MSA, 2000-2011

Geographic Area	Numbers of Patents Issued
Minnesota	34,365
Minneapolis-Saint Paul MSA	28,088
MSA Share of Minnesota	81.7%

Source: U.S. Patent and Trademark Office

7.1.5 Employment & Number of Firms in Program Target Industries

Although Greater Minnesota had a smaller share of the employment base and job growth in the industries targeted for ATC, as approximated by NAICS codes,⁵⁴ these shares were well above their proportion of ATC investment. For all 17 ATC targeted industries that received Qualified Investments, the average Greater Minnesota share of employment in 2009 was 30.2 percent while the average job growth within these industries from 2009 to 2012 was +1,067, or 61 percent of the average in the metro region (1,757).

Since the vast majority of ATC investment went to a subset of the targeted industries, it is more relevant to look at employment and job growth in these industries that attracted angel investment. Table 6.6 shows the 2009 Greater Minnesota share of employment and establishments for the ten targeted industries that received 97 percent of ATC Qualified Investments while Table 6.7 compares the change in employment and establishments for these industries from 2009-2011 in the Twin Cities Metro area and Greater Minnesota. In these ten industries, Greater Minnesota's average share of employment was 20.5 percent while its average for establishments was even larger at 43.1 percent. This shows that Twin City area firms are, on average, much larger than Greater Minnesota firms and thus more likely to have specialized and highly skilled staff such as engineers, software developers, and executives with the proclivity to launch a start-up.

The Greater Minnesota share of employment varied across the ten industries and was below 10 percent in four industries: Clean Tech, Instrumentation, Medical Devices, and Software. Other than Instruments, these were three of the largest recipients of all Qualified Investments, accounting for 60 percent of \$138.6 million invested through the program. Thus, the size and composition of the industry base in Greater Minnesota appears to be a factor in its low utilization of the ATC program.

⁵⁴ NAICS industry classifications do not exactly match the ATC target industries and in some cases NAICS data was only available at a higher industry level than the ATC target. For example, NAICS 22 is all utilities, which includes the targeted industry energy cluster but also other types of businesses. Since these NAICS industries include other non-targeted industries, they do not exactly measure demand conditions in the target industries. It is possible that there is much greater disparity at the more disaggregated smaller industry level that cannot be measured by the available secondary data.

Table 7.7. Greater Minnesota Share of Employment and Establishments in 2009 in Industries with Significant Qualified Investments

NAICS	DEED Industries Represented	Greater Minnesota Employment Share	Greater Minnesota Establishment Share
22	Industrial Energy (Utilities)	57.5%	74.6%
3336	Clean Technology	6.6%	50.0%
3341	Computers & Peripherals	24.7%	32.1%
3344	Electronics	41.1%	38.6%
3345	Instrumentation	6.0%	21.5%
3391	Medical Devices and Equipment	9.8%	33.2%
5112	Software	9.3%	40.6%
518	Internet/Web Services/IT Services	12.5%	50.2%
5415	Internet/Web Services/IT Services	18.7%	42.2%
5417	Biotechnology	18.4%	48.7%
Average		20.5%	43.1%

Source: Quarterly Census of Employment and Wages

Note: Industries in bold type are the four NAICS codes with the largest amount of Qualified Investment.

On the other hand, net firm and employment growth from 2009-2012 was higher in Greater Minnesota than in the Twin Cities metro area for most industries (See Table 6.7). The metro area had a net loss of establishments for seven industries attracting significant Qualified Investment and modest net increases of eight or less establishments in the other three industries. Greater Minnesota, in contrast, saw net establishment growth for five of the industries in Table 6.7, with sizable increases ranging from 34 to 839 in four of them.

Positive net employment growth was limited to three industries in the Twin Cities region—Electronics, Internet/Web Services/IT Services, and Biotechnology, the last netting only six new jobs. However, the Internet/Web Services/IT Services expansion was relatively large, adding almost 3,000 jobs and contributing to net job growth for all industries of 1,907. Greater Minnesota had more widespread job growth with net increases in all but one industry. In five industries, the net increase was modest—under 100 jobs—but three industries, Medical Equipment, Software and Internet/ Web Services/IT Services each added several hundred jobs.

While these data show that Greater Minnesota had growth in the key industries that received tax credits, it does not reveal the extent to which this growth occurred in small early stage companies that qualify for the Angel Tax Credit program. All or most of the

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increases could have come from established firms, well capitalized early stage firms, or both. Another limitation of these data is that they only capture net growth and not the contributions to this growth—it is possible that the Twin Cities metro area had considerable growth in start-up establishments matched with larger contractions from existing enterprises that resulted in the net losses, for instance.

Table 7.8. Greater Minnesota and Twin Cities Metro Employment and Establishment Growth in Industries with Significant Qualified Investments, 2009-2012

NAICS	DEED Industries Represented	Change in Greater Minnesota Employment	Change in Metro Area Employment	Change in Greater Minnesota Establishments	Change in Metro Area Establishments
22	Industrial Energy (Utilities)	1	-19	11	1
3336	Clean Technology	18	-3	-4	-1
3341	Computers & Peripherals	-1,242	-313	-9	-14
3344	Electronics	78	371	-2	-6
3345	Instrumentation	96	-562	-6	-17
3391	Medical Devices and Equipment	344	-501	-18	-2
5112	Software	555	-59	37	-1
518	Internet/Web Services/IT Services ⁵⁵	47	241	34	6
5415	Internet/Web Services/IT Services ⁷	745	2,746	839	-27
5417	Biotechnology	97	6	70	8
Average		74	191	95	-5
Total		739	1,907	952	-53

Source: Quarterly Census of Employment and Wages

Note: Industries in bold type are the four NAICS codes with the largest amount of Qualified Investment.

⁵⁵ Firms in the Internet/Web Services/IT Services industry fall within two NAICS codes so data for both of these industries are included.

7.1.6 Self-Employment Activity in Program Target Industries

To get a better picture of differences in entrepreneurial activity, Tables 6.8 and 6.9 present data on self-employment activity between Greater Minnesota and the Twin Cities metro area from 2009-2011, the most recent data available at the time of this evaluation. These data cover sole proprietorship businesses that report business income via Schedule C on federal personal income tax filings. Greater Minnesota’s share of revenues and enterprises across these industries averaged 28 percent and 29 percent, respectively—close to three times its share of ATC investment. Among the four industries with the largest percentage of ATC investment, Greater Minnesota accounted for 18 percent to 38 percent of Minnesota’s sole proprietorships. This indicates that there is considerable entrepreneurial activity in Greater Minnesota within key industries groups targeted for angel investment.

Table 7.9. Greater Minnesota Share of Self-Employment Revenue and Enterprises in 2009 for Industries with Significant Qualified Investments

NAICS	DEED Industries Represented	Greater Minnesota Share of Revenue	Greater Minnesota Share of Enterprises
22	Industrial Energy (Utilities)	77.0%	59.1%
3336	Clean Technology	34.0%	37.6%
3341	Computers & Peripherals	20.3%	12.5%
3344	Electronics	25.2%	24.5%
3345	Instrumentation	24.3%	30.1%
3391	Medical Devices and Equipment	13.1%	21.7%
5112	Software	13.7%	18.2%
518	Internet/Web Services/IT Services	14.8%	26.5%
5415	Internet/Web Services/IT Services	77.0%	59.1%
5417	Biotechnology	34.0%	37.6%
Average		27.8%	28.8%

Source: Census Bureau Non-employer Statistics

Note: Industries in bold type are the four NAICS codes with the largest amount of Qualified Investment

While the net growth in self-employed enterprises was higher in Greater Minnesota than the Twin Cities region, revenue growth was much greater for metro area enterprises across almost all industries with significant ATC investment activity. Average industry wide revenue grew by over \$3.7 million among metro area sole proprietorship enterprises, which was 3.3 times larger than the \$1.1 million average for enterprises in Greater Minnesota. This suggests that metro area sole proprietorships are faster growing enterprises and thus better positioned to transition into businesses that can attract angel investment.

Table 7.10. Greater Minnesota and Twin Cities Metro Self-Employment Revenue (\$ thousands) and Enterprise Growth in Industries with Significant Qualified Investments, 2009-2011

NAICS	DEED Industries Represented	Greater Minnesota Change in Revenues	Metro Area Change in Revenues	Greater Minnesota Change in Enterprises	Metro Area Change in Enterprises
22	Industrial Energy (Utilities)	\$2,689	\$1,190	4	-21
333	Clean Technology	\$1,541	\$3,743	31	19
334	Computers, Electronics, Instrumentation Peripherals	-\$17	\$1,451	11	1
3391	Medical Devices and Equipment	-\$934	-\$175	-10	-10
511	Software (Publishing)	\$605	-\$968	8	-15
518	Internet/Web Services/IT Services	\$2,334	\$2,207	20	-3
5415	Internet/Web Services/IT Services	\$2,517	\$21,877	28	35
5417	Biotechnology	\$336	\$526	-20	-88
Total		\$9,071.00	\$29,851	72	-82
Average		\$1,134	\$3,731	9	-10

7.1.7 Qualitative Factors from Key Informant Interviews

Based on interviews with over a dozen professionals active in economic development, entrepreneurial development and angel investing, a number of factors were identified that contribute to the disparities in use of Minnesota’s angel tax credits. These factors are grouped into demand side factors related to presence of high growth early stage businesses and their pursuit of angel tax credits and supply side factors that affect the availability of angel investors willing to supply capital and use the angel tax credit across different regions and type of enterprises. These factors reflect practitioners’ experience and observations and, although not verified from quantitative data, they indicate conditions that affect the capacity to broadly deploy the ATC program across Minnesota and potential areas for intervention to reduce the highly concentrated use of the program.

Four main **demand side factors** were cited by interviewees as barriers to more robust use of ATC in Greater Minnesota and among women-owned and minority-owned businesses. These are factors mentioned by multiple informants but do not represent a consensus since differences existed in the factors cited among informants, including some regional variations in which factors were deemed most relevant and important. Nonetheless, all

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interviews noted that the Twin Cities region is much stronger and better positioned across all of these demand side factors, with far more entrepreneurs creating businesses suitable for angel investment, a strong and dense support infrastructure to nurture their growth and connect them to potential angel investors and business awareness of and interest in utilizing the angel tax credit program. The four demand factors cited are:

- **Limited entrepreneurial activity in high growth firms.** This was the most commonly cited factor for limited use of the ATC program. Economic development professionals and angel investors in several regions stated that deal flow was very limited in the type of high growth industries and businesses that fit angel investors' criteria and return potential. In two Greater Minnesota regions in which angel funds were recently formed to support local businesses, they found few suitable businesses for investments and invested most of their capital in enterprises outside their home region. Similarly, several informants believed that angel investment in women- and minority-owned firms was constrained by the type of enterprises these entrepreneurs established, which are concentrated in local-serving retail and service industries rather than high growth export markets. The Twin Cities metro area also has a much greater diversity of businesses so there are more opportunities for angel investors to find the type of business that matches their investment preferences.
- **Weaker support systems to grow businesses and connect them to resources.** In several regions, informants felt that the networks, services and resources that identify and nurture promising entrepreneurs and help connect them to angel investors are not strong and constrain the growth of angel investment ready business. This not only applies to entrepreneurial development assistance and mentors but to essential business needs for skilled workers and consulting or supplier expertise. One informant cited the example of an angel-backed medical device company that relocated to the Twin Cities region due to greater availability of an engineering workforce and services. Another person discussed the importance of the clustering process for firms in the same industry—that firms want to be near other firms in their industry and most of the industries that appeal to angel investors, such as medical technology, clean tech and IT are found in the Twin Cities metro area. Moreover, several informants noted that the lower density of entrepreneurs and investors in rural areas and small cities makes it difficult to bring together entrepreneurs and angel investors to network, meet and improve business' understanding of angel investing. Even in regions where these networks and resources do exist, the entrepreneurial development systems are less developed and less dense than those found in the Twin Cities region.
- **Business cultural resistance to angel investment or use of government programs.** A subset of interviewees noted that values and cultural factors in Greater Minnesota reduce business interest in pursuing angel investment and tax credits. One aspect of this is a sense of independence and reluctance to give up ownership

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or control that comes with angel investing. A related cultural factor is the resistance to using government programs and/or the view that tax credits are a “handout” may have deterred some businesses in Greater Minnesota from pursuing angel tax credits.

- **Design and limited awareness of ATC in Greater Minnesota.** Practitioners in most regions reported that there is not widespread knowledge and understanding of the ATC program among businesses, investors and economic development professionals in their regions, which may have lowered use of the credits in Greater Minnesota. There were mixed views on the level and effectiveness of DEED’s marketing of the program. Some interviewees reported little outreach and marketing of the program in the region after the initial rollout (some acknowledged DEED had a very limited budget for these purposes) while others felt the DEED ATC program staff had worked hard to spread the work and promote the program. A few people also felt that type of industries that qualify for the program are far more likely to be found in the Twin Cities and some are not found in some Greater Minnesota regions.

In addition to these demand conditions, several factors were cited that reduce investors’ supply of angel investment capital to firms in Greater Minnesota. Four supply side factors were emphasized by informants:

- **Limited base of angel investors or capacity to tap local investors.** In some regions, there are few local investors interested in and qualified to make angel investments. Since these local investors, often wealthy business people from the region, have the greatest interest in supporting indigenous entrepreneurs and more capacity to mentor them due to their proximity, this limited supply of investors is viewed as limiting local angel funding. Some informants also reported that the aging of local investors contributed to a reduced supply of angel capital as investors become more concerned with preserving their wealth and reluctant to make higher risk investments. A limited supply of local angel capital may motivate entrepreneurs to start their business in, or move it to, the Twin Cities’ region. A related issue raised by some practitioners is weak capacity to activate a region’s angel investor base. Many regions have not inventoried and identified local investors who are qualified and interested in making angel investments and thus cannot draw on them to fund businesses and to market the availability of angel tax credits. Other informants noted that investors from outside Greater Minnesota are linked to other angel investors, entrepreneurs and investment opportunities in Greater Minnesota through several angel investors networks so that a limited supply of local angel investor is not a barrier.
- **Status and Experience of Past Angel Funds.** Several regions had prior experience with angel investment that limited their capacity to utilize the ATC programs. A number of Greater Minnesota regions organized angel investment funds well

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before the angel tax credit went into effect. Most of these funds were fully invested and thus could not utilize the tax credit. In these cases, part of the regional angel investor base had already been organized and deployed in advance of the tax credit. In other regions, past angel funds had not fared well which generated mistrust in new efforts to organize angel networks and soured investor interest in making new angel investments.

- **Lack of infrastructure to connect investors to entrepreneurs and facilitate investments.** Some practitioners cited the absence of the infrastructure and capacity needed to connect investors with entrepreneurs and manage the investment process as a barrier to generating angel investments and utilizing the credits. In these cases, interested angel investors existed but no staff or agent existed to identify entrepreneurs, vet and conduct due diligence on the businesses and coordinate the investment process to activate the region's angel investor capacity.
- **Social networks and investor experience may limit interest in women and/or minority entrepreneurs.** Informants noted that most angel investors are white males and that their social and professional networks may limit their exposure to women and minority entrepreneurs and thus the angel capital channeled to these enterprises. "Connector" organizations or individuals that are well connected within the angel community and that also have cultural understanding and networks within minority communities do not exist in most Greater Minnesota regions, which creates a barrier to channeling angel investment and tax credits to promising high-growth enterprises that may exist within these communities. In a similar vein, other informants mentioned angel investors may have a higher comfort level and proclivity to invest in entrepreneurs with similar experience and backgrounds and this may affect access to angel investment among women and minority entrepreneurs. However, this view was not shared by everyone and a number of investors indicated that their decisions are only driven by the quality of the business opportunity and not by the business location or ownership.

Several suggestions and proposals to improve the utilization of the ATC program in Greater Minnesota and among women and minority entrepreneurs were made by interviewees. These proposals include:

- **Creating an angel tax credit set-aside for Greater Minnesota.** Since the conditions in Greater Minnesota require a longer time period to find and nurture high-growth enterprises and connect them with investors, a set-aside would preserve a portion of the angel tax credits for businesses in Greater Minnesota during the more extended development and investment period rather than having them rapidly used up by the larger, faster-paced and denser metro area high-tech sector.

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- **Expand outreach and marketing initiatives to increase awareness and understanding of the ATC program.** This would help overcome limited knowledge of the ATC and how to use it within those regions in which familiarity with the program is limited.
- **Provide support for coordinators or facilitators to work with angel investors and investor networks in Greater Minnesota.** Financial and technical support can be provided either through regional economic development or entrepreneurial development organizations or directly to investor networks to help them support and train agents who can play the critical “staffing role” in reviewing potential investments and managing the vetting, due diligence and investment closing process.
- **Support more “connector organizations” to reach women and minority entrepreneurs.** Financial support would be provided to expand the work of existing connector organization to serve more regions in Greater Minnesota or create new organizations within underserved regions to provide this function of connecting entrepreneurs and businesses in minority communities to angel investors and investment networks and to key resources that can foster the success and growth of their businesses.

8

CONCLUSION

Tax credits for angels have become a popular way to encourage equity investments in early stage, technology based businesses. According to the Angel Capital Association, 26 states including Minnesota currently have some form of tax credit for angel investors. The existence of the ATC clearly incentivized new and expanded investment in Minnesota QSBs from 2010-2012. While some investors would have made the same investment even if ATCs had not been available, many are new to angel investing and the program expanded investment for over three-quarters of active investors, \$71.7 million of which is attributable to the credits (of 52% of the actual 2010-2012 investment amount). For investments in Greater Minnesota QSBs, although they represent a small share of total investment, the attribution effect is relatively strong; of the \$14.7 million invested in Greater Minnesota from 2010-2012, only 40 percent (\$5.9 million) would have been invested without the ATC program. Investments in medical device and equipment manufacturing QSBs are also particularly dependent on the existence of the ATC, suggesting that the program has succeeded in encouraging continued growth in an already prevalent industry. Among leading industries, the attribution effect is lowest for clean tech, meaning Qualified Investment may be crowding out investment that is likely to occur anyway.

Little angel investment beyond that qualifying for the ATC was spurred as a result of the program, but participation did increase awareness on the part of investors of opportunities in new innovations, technologies, and industries; the Twin Cities Metro area; and, to a lesser degree, Greater Minnesota. Importantly, the program also affected investor behavior by creating an incentive to delay investments when credits were fully issued before year-end and thus creating problems for some QSBs trying to move forward with their business plans. Should the program be continued beyond 2014, this finding highlights the need for funding or allocation reforms that will reduce this uncertainty for Minnesota start-ups.

While the ATC program does not pay for itself within ten years, it most likely resulted in the largest 2010-2012 impacts when compared to alternate uses of state budget resources. Also, limiting the estimate of the program's future benefits to 2020 omits the possibility that, with increased employment at some QSBs and higher future investment returns if some Qualified Investors make late exits with large capital gains, it eventually could pay for itself. Finally, large disparities in the use of ATCs exist, and the program will be improved by addressing identified gaps. In Greater Minnesota in particular, enhancing connections between entrepreneurs and investors, devoting more resources to marketing, and creating a designated tax credit set-aside will help make the program more widely accessible.

APPENDIX A: MINNESOTA STATUTES

116J.8737 SMALL BUSINESS INVESTMENT TAX CREDIT.

Subd. 10. Program evaluation.

(a) No later than December 31, 2012, the commissioner of revenue, after consultation with the commissioners of management and budget and employment and economic development, shall contract with a qualified outside entity or individual to evaluate the effects of the small business investment tax credit on the Minnesota economy. The contractor must not be associated with, employed by, or have contracts with the entities involved in or associated with the venture capital, angel investment, life science, or high technology industries. The program evaluation must be completed by January 2014, and provided to the chairs and ranking minority members of the legislative committees having jurisdiction over taxes and economic development in the senate and the house of representatives, in compliance with sections [3.195](#) and [3.197](#). The program evaluation must include, in addition to any other matters the commissioner considers relevant to evaluating the effectiveness of the credit, analysis of:

(1) the effect of the credit on the level of equity investment in qualified small businesses in Minnesota, including investments by angel investors, venture capital firms, and other sources of equity capital for startup businesses;

(2) the effect of the credit, if any, on investment in firms other than qualified small businesses;

(3) the amount of economic activity, including the number of jobs and the wages of those jobs, generated by qualified small businesses that received investments that qualified for the credit;

(4) the incremental change in Minnesota state and local taxes paid as a result of the allowance of the credit; and

(5) the net benefit to the Minnesota economy of allowance of the credit relative to alternative uses of the resources, such as increasing the research and development credit or reducing the corporate franchise tax rate.

(b) \$100,000 is appropriated to the commissioner of revenue from the general fund for fiscal year 2013 for the purposes of this evaluation. Any unspent amount of this appropriation carries over to fiscal year 2014. The allocation of the credit in subdivision 5 for taxable year 2013 is reduced by \$100,000. This appropriation may be used to hire a consultant or consultants to prepare all or part of the study.

(c) To the extent necessary to complete the program evaluation, and as provided in subdivision 8, the consultant or consultants may request from the commissioner of revenue tax return information of taxpayers who are qualified small businesses, qualified investors, and qualified funds. To the extent necessary to complete the program evaluation, the consultant or consultants may request from the commissioner of employment and economic development applications for certification and annual reports made by qualified small businesses, qualified investors, and qualified funds.

The consultant or consultants may not disclose or release any data received under this section except as permitted for a government entity under chapter 13, and is subject to the penalties and remedies provided in law for violation of that chapter.

Investor Survey

The Minnesota Legislature has mandated an evaluation of the economic and fiscal impacts of the Minnesota Angel Investment Tax Credit Program ("Angel Tax Credit"). The Economic Development Research Group (EDRG) was hired to conduct this evaluation, and is surveying investors who have made angel investments under this program to help assess the program's impact.

All information that you provide will be viewed only by EDRG. We will not disclose or release any data you provide, and only aggregated or summarized results over all responding investors will be reported publicly.

Tennessee Warning: Pursuant to Minnesota Statutes, Section 13.04, subd. 2, this notice explains why we are requesting private data about you, how we will use it, and your obligation to provide the data. This data is being requested to evaluate the Minnesota Angel Investment Tax Credit. The data you provide will be aggregated with other responses we receive and used in summary form in an assessment of the economic impact of the program. This survey is voluntary and you are not required to provide the requested information, but your response will assist in our evaluation of the tax credit. We may not disclose or release any data you provide to us except as required by law.

In this survey, **Angel Investment** means a cash investment in a firm made in exchange for common stock, a partnership or membership interest, preferred stock, debt with mandatory conversion to equity, or an equivalent ownership interest approved by the Minnesota Commissioner of Employment and Economic Development.

Investor Survey

1. Investor Name

About Your Qualified Angel Investments between 2010 and 2012

This section of the survey will address only those angel investments that qualified for the Minnesota Angel Tax Credit. **Include investments you made directly in a business and omit investments in a Qualified Investment Fund** (addressed in a separate survey of Qualified Investment Funds).

2. Regarding firms in which you have made Qualified Angel Investments, if you had any of the relationships listed in the table below when the Qualified Angel Investment was made, please indicate the NUMBER of Qualified Angel Investments made.

I am a principal, founder, executive or board member of the firm(s).

I am an immediate family member (spouse, parent, sibling, or child or their spouse) of a principal, founder or executive of the firm(s).

3. Regarding firms in which you have made Qualified Angel Investments, if you had any of the relationships listed in the table below when the Qualified Angel Investment was made, please indicate the VALUE (\$) of Qualified Angel Investments made.

I am a principal, founder, executive or board member of the firm(s).

I am an immediate family member (spouse, parent, sibling, or child or their spouse) of a principal, founder or executive of the firm(s).

Investor Survey

4. In how many firms headquartered within the Twin Cities metro area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties) did you make Qualified Angel Investments?

- None
- 1
- 2
- 3
- 4

Other (please specify)

5. In how many firms headquartered outside the Twin Cities metro area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties) did you make Qualified Angel Investments?

- None
- 1
- 2
- 3
- 4

Other (please specify)

6. For how many of these firms did you take on the following roles after making an angel investment?

Served on the board of directors

Served as an officer

Served as a mentor to the firm founder or other executive

Investor Survey

7. How did you learn about the specific investment opportunities in which your fund made Qualified Angel Investments? *Check all responses that apply.*

	Twin Cities Metro* opportunities	Outside Twin Cities Metro* Opportunities
I am a principal, founder or executive in the company (ies)	<input type="checkbox"/>	<input type="checkbox"/>
Directly from the firm principal, founder or executive	<input type="checkbox"/>	<input type="checkbox"/>
From participating in an angel investment network	<input type="checkbox"/>	<input type="checkbox"/>
Through a referral from another angel investor, angel investment network or fund	<input type="checkbox"/>	<input type="checkbox"/>
From the Qualified Small Business list compiled by the Department of Employment and Economic Development (DEED)	<input type="checkbox"/>	<input type="checkbox"/>
From an accountant or attorney	<input type="checkbox"/>	<input type="checkbox"/>
Through a business association or network	<input type="checkbox"/>	<input type="checkbox"/>
From an economic development organization	<input type="checkbox"/>	<input type="checkbox"/>
From a co-worker, other professional colleague or friend	<input type="checkbox"/>	<input type="checkbox"/>
Through web or other media research	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input type="text"/>	

*Twin Cities Metro is defined as Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties.

Investor Survey

About Non-Qualifying Angel Investments between 2010 and 2012

This section of the survey will address angel investments that **did not** qualify for the Minnesota Angel Tax Credit

8. For the years 2010 to 2012, did you make any angel investments that did not qualify for the Minnesota angel tax credit, either within Minnesota or elsewhere? If NO, skip to next page.

- Yes
- No

9. If yes, please indicate for 2010, the number of firms in which you invested and the value (\$) of these non-qualifying angel investments made in Minnesota-based firms and in firms based outside Minnesota, and the number of firms receiving and value (\$) of investments outside Minnesota for which you received any non-Minnesota tax credits.

Number of **Minnesota based firms** receiving investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** receiving investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

Investor Survey

10. If yes, please indicate for 2011, the number of firms in which you invested and the value (\$) of these non-qualifying angel investments made in Minnesota-based firms and in firms based outside Minnesota, and the number of firms receiving and value (\$) of investments outside Minnesota for which you received any non-Minnesota tax credits.

Number of **Minnesota based firms** receiving investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** receiving investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

Investor Survey

11. If yes, please indicate for 2012, the number of firms in which you invested and the value (\$) of these non-qualifying angel investments made in Minnesota-based firms and in firms based outside Minnesota, and the number of firms receiving and value (\$) of investments outside Minnesota for which you received any non-Minnesota tax credits.

Number of **Minnesota based firms** receiving investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** receiving investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

12. Were you a principal, founder or executive in any of the firms when you made a non-qualifying angel investment?

Yes

No

13. If yes, please indicate the number of such firms and value (\$) of non-qualifying angel investments that you made in these firms in which you were a principal, founder or executive.

Number of firms

Value (\$)

Investor Survey

14. If any of these non-qualifying angel investments in Minnesota-based firms were an outgrowth of or resulted from your participation in the Angel Tax Credit Program, please list them in the table below.

Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>

Investor Survey

About Angel Investments Prior to 2010

This section of the survey will address all your angel investments made prior to 2010.

15. Did you make any angel investments prior to 2010, either to firms based within Minnesota or elsewhere? If NO, skip to Question 19.

Yes

No

16. In what year did you first make an angel investment?

17. For the period 2004 through 2006, please indicate the number of firms receiving and value (\$) of angel investments that you made in Minnesota-based firms and for firms based outside Minnesota.

Number of **Minnesota based firms** that received investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** that received investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

Investor Survey

18. For the period 2007 through 2009, please indicate the number of firms receiving and value (\$) of angel investments that you made in Minnesota-based firms and for firms based outside Minnesota.

Number of **Minnesota based firms** that received investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** that received investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

19. Had the Minnesota Angel Investment Tax Credit not existed, how would you have used the funds you invested in a Qualified Angel Investment for that particular year? For each year, check one statement that best applies.

	2010	2011	2012
I did not make any Qualified Angel Investment this year.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have made the same investment(s) in qualifying small businesses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have made smaller investment(s) in qualifying small businesses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would not have made any investments in qualified small businesses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Investor Survey

20. If you would have made smaller investment(s) in qualifying small businesses in any year between 2010 and 2012, what percentage (%) of the actual investment would you have made? (Leave blank for years that are not applicable.)

2010	<input type="text"/>
2011	<input type="text"/>
2012	<input type="text"/>

21. In Question 19, if you would have made smaller or no investment(s) in qualifying small businesses in any year between 2010 and 2012, how else would you have used the funds? For each year, check one statement that best applies.

	2010	2011	2012
Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have spent the funds and not invested them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have made angel investments in other Minnesota-based businesses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have made angel investments in other non-Minnesota based businesses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have invested in publicly traded equities (including individual stocks, mutual funds, ETF, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have invested in taxable (under Minnesota state income taxes) publicly traded fixed income investments (including individual notes or bonds, mutual funds, ETF, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have invested in tax-exempt (under Minnesota state income taxes) fixed income investments (including individual notes or bonds, mutual funds, ETF, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would have kept the funds in short-term cash investments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other use or investment. Please describe:

Investor Survey

22. How has your awareness of Minnesota early stage businesses and angel investment opportunities changed in the following areas as a result of your fund's participation in the Angel Tax Credit Program? Check all responses that apply.

	Increased	Same/No Change	No Opinion
In the Twin Cities Metro area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside the Twin Cities Metro area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Among women-owned businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Among minority-owned businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New innovations, technologies or industries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please specify new innovations, technologies, industries or any other awareness areas

23. Please describe any other outcomes or impacts that have resulted from your participation in the Angel Tax Credit Program.

Thank you for completing the survey.

Investment Fund Survey

The Minnesota Legislature has mandated an evaluation of the economic and fiscal impacts of the Minnesota Angel Investment Tax Credit Program ("Angel Tax Credit"). The Economic Development Research Group (EDRG) was hired to conduct this evaluation, and is surveying Qualified Investment Funds that have made angel investments under this program to help assess the program's impact.

All information that you provide will be viewed only by EDRG. We will not disclose or release any data you provide, and only aggregated or summarized results over all responding investment funds will be reported publicly.

Tennessee Warning: Pursuant to Minnesota Statutes, Section 13.04, subd. 2, this notice explains why we are requesting private data about you, how we will use it, and your obligation to provide the data. This data is being requested to evaluate the Minnesota Angel Investment Tax Credit. The data you provide will be aggregated with other responses we receive and used in summary form in an assessment of the economic impact of the program. This survey is voluntary and you are not required to provide the requested information, but your response will assist in our evaluation of the tax credit. We may not disclose or release any data you provide to us except as required by law.

In this survey, **Angel Investment** is defined as a cash investment in a firm made in exchange for common stock, a partnership or membership interest, preferred stock, debt with mandatory conversion to equity, or an equivalent ownership interest approved by the Minnesota Commissioner of Employment and Economic Development.

Investment Fund Survey

About Your Qualified Investment Fund

1. Qualified Investment Fund Name

2. Year Fund was Organized

3. State in Which Fund is Organized

4. City Location of Fund or Fund Manager's Principal Office

Note: From this point on, the survey will refer to your Qualified Investment Fund as “your fund” for brevity.

Investment Fund Survey

About Capital Raised for Your Fund

5. For 2010, indicate a) the number of investors who invested in your fund and b) the amount (\$) of capital raised by your fund for making angel investments (“Angel Investment Capital”).

Number of investors

Total Angel Investment
Capital (\$)

6. For 2011, indicate a) the number of investors who invested in your fund and b) the amount (\$) of capital raised by your fund for making angel investments (“Angel Investment Capital”).

Number of investors

Total Angel Investment
Capital (\$)

7. For 2012, indicate a) the number of investors who invested in your fund and b) the amount (\$) of capital raised by your fund for making angel investments (“Angel Investment Capital”).

Number of investors

Total Angel Investment
Capital (\$)

Investment Fund Survey

About Qualified Angel Investments between 2010 and 2012

This section of the survey will address only those angel investments that qualified for the Minnesota Angel Tax Credit.

8. In how many firms headquartered within the Twin Cities metro area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties) did your fund make Qualified Angel Investments?

- None
- 1
- 2
- 3
- 4

Other (please specify)

9. In how many firms headquartered outside the Twin Cities metro area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties) did your fund make Qualified Angel Investments?

- None
- 1
- 2
- 3
- 4

Other (please specify)

Investment Fund Survey

10. How did you learn about the specific investment opportunities in which your fund made Qualified Angel Investments? *Check all responses that apply.*

	Twin Cities Metro* opportunities	Outside Twin Cities Metro* Opportunities
Directly from the firm principal, founder or executive	<input type="checkbox"/>	<input type="checkbox"/>
From participating in an angel investment network	<input type="checkbox"/>	<input type="checkbox"/>
Through a referral from another angel investor, angel investment network or fund	<input type="checkbox"/>	<input type="checkbox"/>
From the Qualified Small Business list compiled by the Department of Employment and Economic Development (DEED)	<input type="checkbox"/>	<input type="checkbox"/>
From an accountant or attorney	<input type="checkbox"/>	<input type="checkbox"/>
Through a business association or network	<input type="checkbox"/>	<input type="checkbox"/>
From an economic development organization	<input type="checkbox"/>	<input type="checkbox"/>
From a co-worker, other professional colleague or friend	<input type="checkbox"/>	<input type="checkbox"/>
Through web or other media research	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input type="text"/>	

*Twin Cities Metro is defined as Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties.

Investment Fund Survey

About Non-Qualifying Angel Investments between 2010 and 2012

This section of the survey will address angel investments that **did not** qualify for the Minnesota Angel Tax Credit

11. For the years 2010 to 2012, did your fund make any angel investments that did not qualify for the Minnesota angel tax credit, either within Minnesota or elsewhere? If NO, skip to next page.

- Yes
- No

12. If YES, please indicate for 2010, the number of firms in which you invested and the value (\$) of these non-qualifying angel investments made in Minnesota-based firms and in firms based outside Minnesota, and the number of firms receiving and value (\$) of investments outside Minnesota that received non-Minnesota tax credits.

Number of **Minnesota based firms** receiving investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** receiving investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

Investment Fund Survey

13. If YES, please indicate for 2011, the number of firms in which you invested and the value (\$) of these non-qualifying angel investments made in Minnesota-based firms and in firms based outside Minnesota, and the number of firms receiving and value (\$) of investments outside Minnesota that received non-Minnesota tax credits.

Number of **Minnesota based firms** receiving investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** receiving investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

Investment Fund Survey

14. If YES, please indicate for 2012, the number of firms in which you invested and the value (\$) of these non-qualifying angel investments made in Minnesota-based firms and in firms based outside Minnesota, and the number of firms receiving and value (\$) of investments outside Minnesota that received non-Minnesota tax credits.

Number of **Minnesota based firms** receiving investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** receiving investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

Investment Fund Survey

15. If any of these non-qualifying angel investments in Minnesota-based firms were an outgrowth of or resulted from your participation in the Angel Tax Credit Program, please list them in the table below.

Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>
Firm Investment Recipient Name	<input type="text"/>
Value of Investment (\$)	<input type="text"/>

Investment Fund Survey

Angel Investments Prior to 2010

This section of the survey will address all angel investments made by your fund prior to 2010.

16. Did your fund make any angel investments prior to 2010, either to firms based within Minnesota or elsewhere? If NO, skip to Question 19.

Yes

No

17. How many firms received angel investments from your fund prior to 2010?

18. What percent (%) of these firms that received pre-2010 investments were based in Minnesota?

Investment Fund Survey

About Your Fund Manager or Principal Managing Investor ("Fund Manager" is used for brevity hereafter).

This section of the survey will address other angel investment funds established by your Fund Manager prior to 2010.

19. If your Fund Manager organized and managed other angel investment funds prior to 2010, please complete the following

Number of funds organized/managed prior to 2010

Total investment capital (\$) raised in the funds organized prior to 2010

20. For the period 2004 through 2006, please indicate the number of firms that received angel investments from your Fund Manager's other funds and the value (\$) of these investments.

Number of **Minnesota based firms** receiving angel investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** receiving angel investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

Investment Fund Survey

21. For the period 2007 through 2009, please indicate the number of firms that received angel investments from your Fund Manager's other funds and the value (\$) of these investments.

Number of **Minnesota based firms** receiving angel investments

Total value of investments (\$) in **Minnesota based firms**

Number of **firms based outside Minnesota** receiving angel investments

Total value of investments (\$) in **firms based outside Minnesota**

Number of **firms based outside Minnesota** that received non-Minnesota tax credits

Total value of investments (\$) in **firms based outside Minnesota** that received non-Minnesota tax credits

22. How has your awareness of Minnesota early stage businesses and angel investment opportunities changed in the following areas as a result of your fund's participation in the Angel Tax Credit Program? Check all responses that apply.

	Increased	Same/No Change	No Opinion
In the Twin Cities Metro area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outside the Twin Cities Metro area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Among women-owned businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Among minority-owned businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New innovations, technologies or industries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please specify new innovations, technologies, industries or any other awareness areas

23. Please describe any other outcomes or impacts that have resulted from your fund or investment management company's participation in the Angel Tax Credit Program

Thank you for completing the survey.

Business Survey

The Minnesota Legislature has mandated an evaluation of the economic and fiscal impacts of the Minnesota Angel Investment Tax Credit Program ("Angel Tax Credit"). The Economic Development Research Group (EDRG) was hired to conduct this evaluation, and is surveying qualified small businesses that received angel investments under this program to help assess the program's impact.

All information that businesses provide will be viewed only by EDRG. We will not disclose or release any data you provide, and only aggregated or summarized results over all responding businesses will be reported publicly.

Tennessee Warning: Pursuant to Minnesota Statutes, Section 13.04, subd. 2, this notice explains why we are requesting private data about you, how we will use it, and your obligation to provide the data. This data is being requested to evaluate the Minnesota Angel Investment Tax Credit. The data you provide will be aggregated with other responses we receive and used in summary form in an assessment of the economic impact of the program. This survey is voluntary and you are not required to provide the requested information, but your response will assist in our evaluation of the tax credit. We may not disclose or release any data you provide to us except as required by law.

In this survey, **Angel Investment** is defined as a cash investment in a firm made in exchange for common stock, a partnership or membership interest, preferred stock, debt with mandatory conversion to equity, or an equivalent ownership interest approved by the Minnesota Commissioner of Employment and Economic Development.

Business Survey

General Information about Your Firm

1. Firm Name

2. Firm NAICS Industry Code

3-digit NAICS (look up on
last page in paper version)

Other (please specify)

3. Please provide the following data for your firm for 2009 (Enter zero where appropriate).

Total Sales

Total Payroll

Total Minnesota Payroll

Total full time equivalent
(FTE) employees (1 FTE =
2080 hr/yr)

Total FTE employees in
Minnesota

Percent (%) of sales shipped
out of Minnesota

4. Please provide the following data for your firm for 2012 (Enter zero where appropriate).

Total Sales

Total Payroll

Total Minnesota Payroll

Total full time equivalent
(FTE) employees (1 FTE =
2080 hr/yr)

Total FTE employees in
Minnesota

Percent (%) of sales shipped
out of Minnesota

5. Year Firm Established

If established in 2010 or later, skip to next page

Business Survey

6. If established in 2009 or earlier, please indicate how much DEBT capital (\$) your firm raised prior to 2010 from the following sources.

Principal owner/founder	<input type="text"/>
Individual angel investors	<input type="text"/>
Angel investment funds	<input type="text"/>
Commercial or other banks	<input type="text"/>
Finance companies	<input type="text"/>
Other (please specify)	<input type="text"/>
Total	<input type="text"/>

7. If established in 2009 or earlier, please indicate how much EQUITY capital (\$) your firm raised prior to 2010 from the following sources.

Principal owner/founder	<input type="text"/>
Individual angel investors	<input type="text"/>
Angel investment funds	<input type="text"/>
Commercial or other banks	<input type="text"/>
Finance companies	<input type="text"/>
Other (please specify)	<input type="text"/>
Total	<input type="text"/>

Business Survey

Investments Qualifying for the Angel Tax Credit

This section of the survey will address only those angel investments that qualified for the Minnesota Angel Tax Credit

8. For 2010, please indicate the investment your firm received that qualified for the Angel Tax Credit and the total amount of other equity and debt investment funds, if any, that were contingent on receipt of the Angel Tax Credit investment that year (i.e., would not have been obtained without receipt of this tax credit).

Qualified Angel Tax Credit Investment (\$)

Debt capital (\$)

Non-Tax Credit equity capital (\$)

9. For 2011, please indicate the investment your firm received that qualified for the Angel Tax Credit and the total amount of other equity and debt investment funds, if any, that were contingent on receipt of the Angel Tax Credit investment that year (i.e., would not have been obtained without receipt of this tax credit).

Qualified Angel Tax Credit Investment (\$)

Debt capital (\$)

Non-Tax Credit equity capital (\$)

10. For 2012, please indicate the investment your firm received that qualified for the Angel Tax Credit and the total amount of other equity and debt investment funds, if any, that were contingent on receipt of the Angel Tax Credit investment that year (i.e., would not have been obtained without receipt of this tax credit).

Qualified Angel Tax Credit Investment (\$)

Debt capital (\$)

Non-Tax Credit equity capital (\$)

Business Survey

11. How did your firm identify the angel investor(s) who made Angel Tax Credit investments in your company? *Check all that apply.*

- The angel investor was a firm principal, founder or executive
- The angel investor(s) found and contacted us directly
- Through friends or family members
- Through other angel investors in my firm
- From the Qualified Investor list compiled by the Department of Employment and Economic Development (DEED)
- From an accountant or attorney
- Through a business association or network
- From an economic development organization
- From a professional colleague or relationship
- Through a presentation our firm made in a public venture forum or other event

Other (please specify)

12. As a direct result of the financing received from the Angel Tax Credit Program, has your firm increased its level of employment?

- Yes
- No

13. If YES, what is your estimate of the resulting increase in full time equivalent (FTE) jobs?

Business Survey

Investments Not Qualifying for the Angel Tax Credit

This section of the survey will address investments that **did not qualify** for the Angel Tax Credit

14. Did your firm receive other investments not listed in Questions 8-10 that were not contingent on the Angel Tax Credit during 2010 through 2012?

Yes

No

15. If YES, please complete the tables below. If NO, skip to next page.

2010 Debt capital (\$)	<input type="text"/>
2010 Equity capital (\$)	<input type="text"/>
2011 Debt capital (\$)	<input type="text"/>
2011 Equity capital (\$)	<input type="text"/>
2012 Debt capital (\$)	<input type="text"/>
2012 Equity capital (\$)	<input type="text"/>

16. Please indicate the percentage (%) of this DEBT capital raised from each source in the following table.

Principal owner/founder	<input type="text"/>
Other founders and/or executives	<input type="text"/>
Individual angel investors	<input type="text"/>
Angel investment funds	<input type="text"/>
Venture capital funds	<input type="text"/>
Other individuals	<input type="text"/>
Commercial or other banks	<input type="text"/>
Financial companies	<input type="text"/>
Government or non-profit programs	<input type="text"/>
Other (please specify)	<input type="text"/>
Total	<input type="text"/>

Business Survey

17. Please indicate the percentage (%) of this EQUITY capital raised from each source in the following table.

Principal owner/founder	<input type="text"/>
Other founders and/or executives	<input type="text"/>
Individual angel investors	<input type="text"/>
Angel investment funds	<input type="text"/>
Venture capital funds	<input type="text"/>
Other individuals	<input type="text"/>
Commercial or other banks	<input type="text"/>
Financial companies	<input type="text"/>
Government or non-profit programs	<input type="text"/>
Other (please specify)	<input type="text"/>
Total	<input type="text"/>

Business Survey

Use of Capital Raised 2010 to 2012

18. Please estimate the allocation (%) of the investment capital raised by your firm from all sources between 2010 and 2012 across the following uses. *Total must add to 100.*

Purchase or expansion of real estate	<input type="text"/>
Purchase of equipment	<input type="text"/>
Leasehold improvements	<input type="text"/>
Employee salaries	<input type="text"/>
Contract services	<input type="text"/>
Other operating costs	<input type="text"/>
Refinancing existing debt or equity	<input type="text"/>
Other (please specify)	<input type="text"/>

19. For the same allocation, please estimate the portion of each of the following items procured from Minnesota-based vendors (%) between 2010 and 2012.

Purchase or expansion of real estate	<input type="text"/>
Purchase of equipment	<input type="text"/>
Leasehold improvements	<input type="text"/>
Contract services	<input type="text"/>
Other operating costs	<input type="text"/>
Other (please specify)	<input type="text"/>

Estimated Impacts if the Angel Tax Credit Had Not Been Available

20. If the Angel Tax Credit Program had not been available, would your firm have reduced its employment between 2010 and 2012?

- Yes
- No

21. If YES, how many full time equivalent (FTE) jobs do you estimate would have been cut?

22. What would have been the most likely outcome for your firm in raising capital from 2010 through 2012 if the Angel Tax Credit had not been available?

	Same	Less (favorable)	More (favorable)	Don't know
Value of total capital raised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value of equity raised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value of debt raised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Terms of capital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. If your firm would have raised less capital without the Angel Tax Credit between 2010 and 2012, approximately how much less would it have raised?

24. If the Angel Tax Credit had not been available, the sources of capital raised from 2010 through 2012 by your firm would have been the

- Same
- Different
- Don't know

25. How would the sources of capital raised from 2010 through 2012 have been different?

Business Survey

26. Which statement best describes the likely sales growth of your firm since 2010 had the Angel Tax Credit not been available?

- Same as actual rate
- Growth but lower than actual rate
- No growth
- Decreased sales
- The firm would have gone out of business
- The firm would not have been started

27. What is your best estimate of your firm's sales REVENUE (\$) in 2012 had the Angel Tax Credit Program not been available?

28. What is your best estimate of your firm's EMPLOYMENT (FTE) in 2012 had the Angel Tax Credit Program not been available?

29. Please describe any other outcomes, impacts or business milestones that have resulted from your participation in the Angel Investment Tax Credit Program.

Thank you for completing the survey.

List of NAICS Codes

111 Crop Production	484 Truck Transportation
112 Animal Production and Aquaculture	485 Transit and Ground Passenger Transportation
113 Forestry and Logging	486 Pipeline Transportation
114 Fishing, Hunting and Trapping	487 Scenic and Sightseeing Transportation
115 Support Activities for Agriculture and Forestry	488 Support Activities for Transportation
211 Oil and Gas Extraction	491 Postal Service
212 Mining (except Oil and Gas)	492 Couriers and Messengers
213 Support Activities for Mining	493 Warehousing and Storage
221 Utilities	511 Publishing Industries (except Internet)
236 Construction of Buildings	512 Motion Picture and Sound Recording Industries
237 Heavy and Civil Engineering Construction	515 Broadcasting (except Internet)
238 Specialty Trade Contractors	517 Telecommunications
311 Food Manufacturing	518 Data Processing, Hosting, and Related Services
312 Beverage and Tobacco Product Manufacturing	519 Other Information Services
313 Textile Mills	521 Monetary Authorities-Central Bank
314 Textile Product Mills	522 Credit Intermediation and Related Activities
315 Apparel Manufacturing	523 Securities, Commodity Contracts, and Other Financial Investments and Related Activities
316 Leather and Allied Product Manufacturing	524 Insurance Carriers and Related Activities
321 Wood Product Manufacturing	525 Funds, Trusts, and Other Financial Vehicles
322 Paper Manufacturing	531 Real Estate
323 Printing and Related Support Activities	532 Rental and Leasing Services
324 Petroleum and Coal Products Manufacturing	533 Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)
325 Chemical Manufacturing	541 Professional, Scientific, and Technical Services
326 Plastics and Rubber Products Manufacturing	551 Management of Companies and Enterprises
327 Nonmetallic Mineral Product Manufacturing	561 Administrative and Support Services
331 Primary Metal Manufacturing	562 Waste Management and Remediation Services
332 Fabricated Metal Product Manufacturing	611 Educational Services
333 Machinery Manufacturing	621 Ambulatory Health Care Services
334 Computer and Electronic Product Manufacturing	622 Hospitals
335 Electrical Equipment, Appliance, and Component Manufacturing	623 Nursing and Residential Care Facilities
336 Transportation Equipment Manufacturing	624 Social Assistance
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425 Wholesale Electronic Markets and Agents and Brokers	722 Food Services and Drinking Places
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443 Electronics and Appliance Stores	813 Religious, Grantmaking, Civic, Professional, and Similar Organizations
444 Building Material and Garden Equipment and Supplies Dealers	814 Private Households
445 Food and Beverage Stores	921 Executive, Legislative, and Other General Government Support
446 Health and Personal Care Stores	922 Justice, Public Order, and Safety Activities
447 Gasoline Stations	923 Administration of Human Resource Programs
448 Clothing and Clothing Accessories Stores	924 Administration of Environmental Quality Programs
451 Sporting Goods, Hobby, Musical Instrument, and Book Stores	925 Administration of Housing Programs, Urban Planning, and Community Development
452 General Merchandise Stores	926 Administration of Economic Programs
453 Miscellaneous Store Retailers	927 Space Research and Technology
454 Nonstore Retailers	928 National Security and International Affairs
481 Air Transportation	
482 Rail Transportation	
483 Water Transportation	

Non-Recipient Business Survey

The Minnesota Legislature has mandated an evaluation of the economic and fiscal impacts of the Minnesota Angel Investment Tax Credit Program ("Angel Tax Credit"). The Economic Development Research Group (EDRG) was hired to conduct this evaluation, and is surveying qualified small businesses that did not receive angel investments under this program to help assess the program's impact.

All information that businesses provide will be viewed only by EDRG. We will not disclose or release any data you provide, and only aggregated or summarized results over all responding businesses will be reported publicly.

Tennessee Warning: Pursuant to Minnesota Statutes, Section 13.04, subd. 2, this notice explains why we are requesting private data about you, how we will use it, and your obligation to provide the data. This data is being requested to evaluate the Minnesota Angel Investment Tax Credit. The data you provide will be aggregated with other responses we receive and used in summary form in an assessment of the economic impact of the program. This survey is voluntary and you are not required to provide the requested information, but your response will assist in our evaluation of the tax credit. We may not disclose or release any data you provide to us except as required by law.

In this survey, **Angel Investment** is defined as a cash investment in a firm made in exchange for common stock, a partnership or membership interest, preferred stock, debt with mandatory conversion to equity, or an equivalent ownership interest approved by the Minnesota Commissioner of Employment and Economic Development.

Non-Recipient Business Survey

General Information about Your Firm

1. Firm Name

2. Firm NAICS Industry Code

3-digit NAICS (look up on
last page in paper version)

Other (please specify)

3. Please provide the following data for your firm for 2009 (Enter zero where appropriate).

Total Sales	<input type="text"/>
Total Payroll	<input type="text"/>
Total Minnesota Payroll	<input type="text"/>
Total full time equivalent (FTE) employees (1 FTE = 2080 hr/yr)	<input type="text"/>
Total FTE employees in Minnesota	<input type="text"/>
Percent (%) of sales shipped out of Minnesota	<input type="text"/>

4. Please provide the following data for your firm for 2012 (Enter zero where appropriate).

Total Sales	<input type="text"/>
Total Payroll	<input type="text"/>
Total Minnesota Payroll	<input type="text"/>
Total full time equivalent (FTE) employees (1 FTE = 2080 hr/yr)	<input type="text"/>
Total FTE employees in Minnesota	<input type="text"/>
Percent (%) of sales shipped out of Minnesota	<input type="text"/>

5. Year Firm Established

If established in 2010 or later, skip to next page

Non-Recipient Business Survey

6. If established in 2009 or earlier, please indicate how much DEBT capital (\$) your firm raised prior to 2010 from the following sources.

Principal owner/founder	<input type="text"/>
Individual angel investors	<input type="text"/>
Angel investment funds	<input type="text"/>
Commercial or other banks	<input type="text"/>
Finance companies	<input type="text"/>
Other (please specify)	<input type="text"/>
Total	<input type="text"/>

7. If established in 2009 or earlier, please indicate how much EQUITY capital (\$) your firm raised prior to 2010 from the following sources.

Principal owner/founder	<input type="text"/>
Individual angel investors	<input type="text"/>
Angel investment funds	<input type="text"/>
Commercial or other banks	<input type="text"/>
Finance companies	<input type="text"/>
Other (please specify)	<input type="text"/>
Total	<input type="text"/>

Non-Recipient Business Survey

Investment Capital Raised After 2009

This section of the survey will address angel investments and other capital raised after 2009.

8. Did your firm raise any new debt or equity capital during 2010 through 2012?

- Yes
 No

9. If YES, please complete the tables below. If NO, skip to Question 15 on next page.

2010 Debt capital (\$)	<input type="text"/>
2010 Equity capital (\$)	<input type="text"/>
2011 Debt capital (\$)	<input type="text"/>
2011 Equity capital (\$)	<input type="text"/>
2012 Debt capital (\$)	<input type="text"/>
2012 Equity capital (\$)	<input type="text"/>

10. Please indicate the percentage (%) of this DEBT capital raised from each source in the following table.

Principal owner/founder	<input type="text"/>
Other founders and/or executives	<input type="text"/>
Individual angel investors	<input type="text"/>
Angel investment funds	<input type="text"/>
Venture capital funds	<input type="text"/>
Other individuals	<input type="text"/>
Commercial or other banks	<input type="text"/>
Financial companies	<input type="text"/>
Government or non-profit programs	<input type="text"/>
Other (please specify)	<input type="text"/>
Total	<input type="text"/>

Non-Recipient Business Survey

11. Please indicate the percentage (%) of this EQUITY capital raised from each source in the following table.

Principal owner/founder	<input type="text"/>
Other founders and/or executives	<input type="text"/>
Individual angel investors	<input type="text"/>
Angel investment funds	<input type="text"/>
Venture capital funds	<input type="text"/>
Other individuals	<input type="text"/>
Commercial or other banks	<input type="text"/>
Financial companies	<input type="text"/>
Government or non-profit programs	<input type="text"/>
Other (please specify)	<input type="text"/>
Total	<input type="text"/>

Non-Recipient Business Survey

Use of Capital Raised 2010 to 2012

12. Please estimate the allocation (%) of the investment capital raised by your firm from all sources between 2010 and 2012 across the following uses. *Total must add to 100.*

Purchase or expansion of real estate	<input type="text"/>
Purchase of equipment	<input type="text"/>
Leasehold improvements	<input type="text"/>
Employee salaries	<input type="text"/>
Contract services	<input type="text"/>
Other operating costs	<input type="text"/>
Refinancing existing debt or equity	<input type="text"/>
Other (please specify)	<input type="text"/>

13. For the same allocation, please estimate the portion of each of the following items procured from Minnesota-based vendors (%) between 2010 and 2012.

Purchase or expansion of real estate	<input type="text"/>
Purchase of equipment	<input type="text"/>
Leasehold improvements	<input type="text"/>
Contract services	<input type="text"/>
Other operating costs	<input type="text"/>
Other (please specify)	<input type="text"/>

Non-Recipient Business Survey

14. If your firm raised capital from angel investors during 2010 through 2012, how did it identify these angel investor(s)? Check all that apply.

- The angel investor was a firm principal, founder or executive
- The angel investor(s) found and contacted us directly
- Through friends or family members
- Through other angel investors in my firm
- From the Qualified Investor list compiled by the Department of Employment and Economic Development (DEED)
- From an accountant or attorney
- Through a business association or network
- From an economic development organization
- From a professional colleague or relationship
- Through a presentation our firm made in a public venture forum or other event

Other (please specify)

15. Was your firm engaged in discussions or negotiations with an angel investor or an angel investment fund during 2010 through 2012 that did not lead to an angel investment?

- Yes
- No

16. If YES, what was the primary reason the angel investment did not occur? Check only one.

- The investment terms offered were not acceptable.
- Our product, service or technology was not feasible or competitive to the angel investor or fund.
- The market for our product or service was too small for the angel investor or fund.
- The angel investor or fund decided that the firm lacked the required management to be successful.
- The firm was not able to make or raise required co-investments needed to complete the angel investment that was offered.
- The firm was not able to meet benchmarks other than co-investment needed to complete the angel investment that was offered.

Other (please explain)

Non-Recipient Business Survey

17. Please describe any other outcomes, impacts or business milestones that have resulted from your being a Qualified Small Business in the Angel Investment Tax Credit Program.

Thank you for completing the survey.

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