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2016 Economic Impact of Companies Funded and/or Assisted by the Northeast Ohio Entrepreneurial Service Provider Program

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Maxine Goodman Levin College of Urban Affairs

Prepared for:
JumpStart Inc.

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May 2017

**2016 ECONOMIC
IMPACT OF COMPANIES
FUNDED AND/OR
ASSISTED BY THE
NORTHEAST OHIO
ENTREPRENEURIAL
SERVICE PROVIDER
PROGRAM**

**CENTER FOR
ECONOMIC
DEVELOPMENT**

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EXECUTIVE SUMMARY

This report measures the economic impact of early-stage companies that were supported in the past by JumpStart Inc. and its partners in the Northeast Ohio Entrepreneurial Service Provider Program (ESP) in 2016.¹ The ESP is a collaborative entrepreneurial support network funded in part by Ohio Third Frontier that includes accelerators, incubators, angel funds, and other organizations dedicated to commercializing technologies and fostering promising entrepreneurial ventures in Northeast Ohio. The companies included in this report have received significant technical assistance and/or direct investment funding from entrepreneurial support organizations in the ESP.²

OVERVIEW

The Northeast Ohio Entrepreneurial Service Provider Program designed and disseminated an online survey to businesses it supports to ascertain each company's economic activity in Northeast Ohio, the remainder of Ohio, and outside Ohio for 2016. In total, 376 ESP companies responded to the survey request from the Entrepreneurial Service Provider Program.³ Of those 376, 105 were excluded from the impact analysis because they reported no employment, payroll, or expenditures in Ohio, indicating that they do not yet create an economic impact. The results described in this report are for calendar year 2016 and they report on the impact of 271 startup companies; of these, 77 were funded and received significant business assistance from an ESP partner (called "portfolio companies") and 194 received significant business assistance but no direct funding from an ESP partner (called "client companies").

The companies that responded to the survey received a combined total of 24,032 hours of pro-bono technical assistance from the ESP in 2016 and at least 96,832 hours of pro-bono technical assistance since they started working with one of the ESP organizations. On average, each company that responded to the survey received 64 hours of technical assistance in 2016 and 258 hours of technical assistance total since their first engagement with an ESP partner. The respondents closed on over \$311 million in capital in 2016. JumpStart provided over \$14.3 million in funding to companies and the NCAF provided over \$8.5 million in funding.

¹ As defined by its primary funder, Ohio Third Frontier, this ESP operates across the 21 counties of Northeast Ohio. The goal of the Ohio ESP is to increase tech-based entrepreneurial commercialization outcomes by focusing on sectors that offer exceptional economic development prospects for the region. Ohio ESPs represent a coordinated regional network of high-value service and assistance providers integrating sources of deal flow, entrepreneurial support, and capital. JumpStart, Inc. is the lead organization for the Northeast Ohio ESP.

² It is important to note that North Coast Angel Fund invests in companies throughout Ohio and the economic outcomes generated from these investments and firms are included in the statewide economic impact. However, all other members of the ESP are mostly located in the 21 counties of Northeast Ohio.

³ This figure is lower than in years past as only data from client companies was given to CSU.

ECONOMIC IMPACT

Economic impact analysis is based on inter-industry relationships within an economy—that is, the buy-sell relationships that exist among industries, the household sector, and government. The economic impact for Northeast Ohio was estimated through an IMPLAN model built for the 21-county area.⁴ The economic impact on Northeast Ohio is outlined in Table I.

Table I: Economic Impact of the ESP on Northeast Ohio, 2016

ESP Northeast Ohio	
Number of Companies	263
Employment Impact	4,393 jobs
Labor Income Impact	\$253.1 million
Tax Impact	\$88.6 million
Output Impact	\$818.8 million

The IMPLAN model was also used to estimate the economic impact of supported companies on the state of Ohio. This year, this report not only includes the economic impact of companies currently engaged by the Northeast Ohio Entrepreneurial Service Provider Program, but also includes a new section highlighting the economic impact of companies previously supported by the ESP network who have exited and thus have graduated out of a need for entrepreneurial support. The table below outlines the economic impact estimates on the State of Ohio for companies that are currently engaged in the ESP programs and the impact of companies that were previously engaged in the ESP program who have exited.

Table II: Economic Impact of ESP Companies and ESP Exited Companies on Ohio, 2016

	ESP Ohio	Exited Companies Ohio
Number of Companies	271	26
Employment Impact	5,614 jobs	2,675 jobs
Labor Income Impact	\$334.7 million	\$179.1 million
Tax Impact	\$112.5 million	\$61.7 million
Output Impact	\$976.3 million	\$515.8 million

This report details ESP companies’ estimated economic impact on Northeast Ohio and Ohio for 2016. There is a new addendum in the analysis of each region that evaluates the impact of Women and Minority Owned Firms. In addition, there is a new section outlining the economic

⁴ The 21-county region includes: Ashland, Ashtabula, Carroll, Columbiana, Crawford, Cuyahoga, Erie, Geauga, Holmes, Huron, Lake, Lorain, Mahoning, Medina, Portage, Richland, Stark, Summit, Trumbull, Tuscarawas, and Wayne counties.

impact on the state of Ohio of firms who previously received support from the ESP, but have experienced an exit (or liquidity event) and have graduated out of need for ESP Service. Additionally, the report includes economic impact estimates for companies that have responded to the survey yearly between 2011 and 2016. Finally, the report examines the economic impact estimates of JumpStart Portfolio Companies on Ohio and Northeast Ohio; portfolio companies are companies that have received investment from JumpStart or the North Coast Angel Fund.

CONCLUSION

In this 11th year of reporting, companies that received investment and support from JumpStart and the ESP partners early in their lifespans are truly showing their impact on the regional and statewide economies, the details of which are shown in the following report.

INTRODUCTION & METHODOLOGY

This report measures the calendar year 2016 economic impact of companies that have been supported by JumpStart Inc. and/or its partners in the Entrepreneurial Service Provider Program (ESP). Companies included in this report have received significant technical assistance and/or direct investment funding from one or more of these sources.

The ESP is a collaborative entrepreneurial support network funded in part by Ohio Third Frontier that includes accelerators, incubators, angel funds, and other organizations dedicated to commercializing technologies and accelerating entrepreneurial successes in Northeast Ohio. The ESP service providers whose clients are included in this report are: Akron Global Business Accelerator, BioEnterprise, BioOhio Research Park, Braintree Business Development Center, Flashstarts, Great Lakes Innovation and Development Enterprise (GLIDE), The Incubator at MAGNET, North Coast Angel Fund (NCAF), Northeast Ohio Medical University, Ohio Aerospace Institute, Tech Belt Energy Innovation Center (TBEIC), University of Akron Research Foundation, and Youngstown Business Incubator. It is important to note that companies could have received funding and/or support from more than one member; however, their impact is only counted once.

In this report, Northeast Ohio is defined as a 21-county region. This region is comprised of six metropolitan statistical areas (MSAs)—Akron, Canton-Massillon, Cleveland-Elyria-Mentor, Mansfield, Sandusky, and Youngstown-Warren-Boardman—and eight non-metro counties. The MSAs are defined as follows:

- Akron MSA: Portage and Summit counties
- Canton-Massillon MSA: Carroll and Stark counties
- Cleveland-Elyria-Mentor MSA: Cuyahoga, Geauga, Lake, Lorain, and Medina counties
- Mansfield MSA: Richland County
- Sandusky MSA: Erie County
- Youngstown-Warren-Boardman MSA: Mahoning and Trumbull counties

The eight non-metro counties are Ashland, Ashtabula, Columbiana, Crawford, Holmes, Huron, Tuscarawas, and Wayne.

This report mirrors the methodology used in the [2014 Economic Impact of Companies Funded and/or Assisted by the Northeast Ohio Entrepreneurial Signature Program](#) and [2015 Economic Impact of Companies Funded and/or Assisted by the Northeast Ohio Entrepreneurial Signature Program](#) which were also conducted by the Center for Economic Development.

INPUT-OUTPUT METHOD

Economic impact analysis is based on inter-industry relationships within an economy—that is, the buy-sell relationships that exist among industries, the household sector, and government. These relationships largely determine how an economy responds to changes in economic activity. Input-output (I-O) models estimate inter-industry relationships in a region by measuring the industrial distribution of inputs purchased and outputs sold by each industry. Thus, by using I-O models, it is possible to estimate how the impact of one dollar or one job ripples through the local economy, creating additional expenditures, jobs, and income. This is the concept of an economic multiplier, which measures the ripple effect that an initial expenditure has on the local economy.⁵

The economic impact estimates presented in this report use the IMPLAN® Version 3.0 model and 2015 data, which is the most recent economic impact assessment software system and data package released by IMPLAN Group LLC.⁶ Sophisticated models of local economies can be developed in order to estimate a wide range of economic impacts. The IMPLAN® impact model is used by more than 1,000 public and private institutions and the number of users, as well as their reputations, points to the high regard for the IMPLAN® model among researchers and consultants. The economic impact for Northeast Ohio was estimated through an IMPLAN model built for the 21-county area. To estimate an economic impact for Ohio, a separate IMPLAN model was built for the remainder of Ohio (a 67-county region) and the impact estimates of the two regions were summed to estimate the impact on Ohio. The data provided by the client and portfolio companies assisted and/or funded by ESP partner organizations informed whether their employees and expenditures were located in Northeast Ohio; outside of Northeast Ohio, but within the state of Ohio; or outside Ohio. Companies located outside Ohio are excluded from these impact estimates. The economic impact presented here is an annual impact which means that it represents the 2016 activity of the companies and their impact in 2016.⁷

Each of the portfolio and client companies was assigned to one of the 536 sectors included in the IMPLAN® model. The IMPLAN® regional model and its data were edited to reflect each company's information. These changes to the model result in better impact estimates because they are based on actual estimates of the specific startup companies, rather than on the average industry data provided by IMPLAN®.

⁵ For example, suppose that Company A reports sales of \$10 million. From the revenues of the company, they pay suppliers and workers, cover production costs, and take a profit. Once the suppliers and employees receive their payments, they will spend a portion of their money in the local economy purchasing goods and services, while another portion of the money will be spent outside the local economy (leakage). By evaluating the chain of local purchases that result from the initial infusion of \$10 million, it is possible to estimate a regional economic multiplier.

⁶ IMPLAN was originally developed by two federal agencies, the Department of Agriculture and the Department of the Interior, to assist in land and resource management planning. The model was later commercialized by the Minnesota IMPLAN Group, Inc. and is now owned by the IMPLAN Group LLC.

⁷ The impact of the companies that have reported between 2011 and 2016 is a summation of their total impact over those five years.

ECONOMIC IMPACT DEFINED

Economic impact is an analytical approach used to estimate economic benefits produced in affected regions by projects, programs, or companies. Economic impact analysis estimates benefits for a specific region and time period. These economic benefits are estimated in terms of five different measures:

- *Employment impact* measures the number of jobs created in the economy.
- *Labor income* estimates the household earnings that are generated in the economy.
- *Taxes* include federal taxes as well as state and local taxes.
- *Output impact* measures the total value of goods and services produced in the economy.

Each economic impact is a summation of three components: *direct impact*, *indirect impact* and *induced impact*. *Direct impact* refers to the initial value of goods and services, including labor, purchased by the startup companies affected by the ESP. These purchases are sometimes referred to as the first-round effect. *Indirect impact* measures the value of labor, capital, and other inputs of production needed to produce the goods and services required by the startup companies (second-round and additional-round effects). *Induced impact* measures the change in spending by local households as a result of increased earnings of employees working in the companies.

IMPACT STUDY DATA

JumpStart designed an online survey questionnaire with specific questions to distinguish a responding company's activities in Northeast Ohio, the remainder of Ohio, and outside Ohio for 2016. The economic impact study presented in this report uses company data for Northeast Ohio and Ohio; all spending outside Ohio is lost to the state and local economy. The Center for Economic Development checked company-level data to ensure consistency between the different variables and geographies.

In total, 376 JumpStart and/or other ESP companies responded to the survey request from JumpStart. Of those 376, 105 were excluded from the impact analysis because they reported no employment, payroll, or expenditures in Ohio, indicating that they do not yet create an economic impact. The results described in this report are for calendar year 2016 and they report on the impact of 271 startup companies; of these, 77 were funded and received significant business assistance from an ESP partner (called "portfolio companies") and 194 received significant business assistance but no direct funding from an ESP partner (called "client companies").

The companies that responded to the survey received a combined total of 24,032 hours of pro-bono technical assistance from the ESP in 2016 and at least 96,832 hours of pro-bono technical assistance since they started working with one of the ESP organizations. On average, each company that responded to the survey received 64 hours of technical assistance in 2016 and 258 hours of technical assistance since their first engagement with an ESP partner. The

respondents closed on over \$311 million in capital in 2016. JumpStart provided over \$14.3 million in funding to companies and the NCAF provided over \$8.5 million in funding.

Of the 286 companies that had current employees and responded to the survey, 77% had between one and ten employees and 23% had 11 or more employees. However, several of the companies are maturing and growing their employment: eight companies employ more than 50 people; four of which employ more than 100 people.

Twenty-five percent of the companies that responded to the survey indicated that the owner represented a minority group. While almost 300 companies are owned by *white* entrepreneurs (282 companies, 75%), 45 owners are *Asian-Indian, Asian-Pacific, or Pacific Islander American* (12%), 33 are *African-American* (9%), 14 are *Latin-American or Hispanic* (4%), and 2 are *Native American* (1%).

The 271 companies included in the economic impact analysis that had economic activity in Ohio employed 1,916 full time employees in Northeast Ohio and 605 people in the remainder of the state. They also list 440 open positions.

The companies incurred \$425.7 million in operating expenses in Northeast Ohio and \$32.4 million throughout the rest of Ohio. The total company payrolls were \$131.6 million in Northeast Ohio and \$51.3 million in the other 67 counties.

ECONOMIC IMPACT ESTIMATES FOR ESP COMPANIES FOR NORTHEAST OHIO

The section examines economic impact estimates of companies located in the 21-county Northeast Ohio region. Impact estimates account for employment, labor income, taxes, and output.

EMPLOYMENT IMPACT

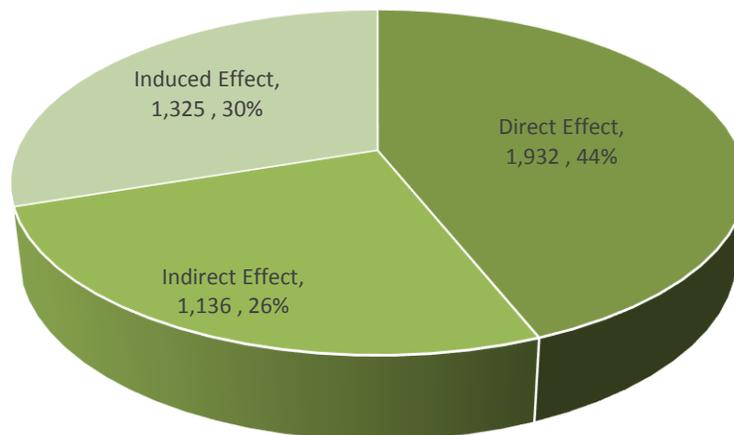
The employment impact in 2016 in Northeast Ohio from ESP serviced companies was 4,393 jobs (Table 1). Of these, 1,932 (44%) were the result of direct impact. An additional 1,136 jobs (26%) were created in industries supporting the companies, and 1,325 (30%) more jobs were created throughout the economy due to increased earnings of employees of the companies and their suppliers (Figure 1).

Table 1: Economic Impact in Northeast Ohio, 2016

Impact Type	Employment	Labor Income	Tax	Output
Direct Effect	1,932	\$133,507,547	\$43,039,252	\$464,394,006
Indirect Effect	1,136	\$62,107,212	\$21,152,788	\$173,724,222
Induced Effect	1,325	\$57,439,181	\$24,402,433	\$180,650,688
Total Effect	4,393	\$253,053,940	\$88,594,473	\$818,768,916

Notes: The economic impact is presented in 2017 dollars.
All numbers have been rounded to the nearest whole number.

Figure 1: Employment in Northeast Ohio by Impact Measure, 2016



LABOR INCOME IMPACT

In 2016, total household earnings in Northeast Ohio increased by \$253.1 million. Of this impact, \$133.5 million (53%) resulted from the direct effects of the companies' payroll, and \$62.1 million (25%) resulted from increased earnings in other industries that supply the companies. The induced income impact of \$57.4 million (22%) was due to increased household earnings throughout the regional economy. Figure 2 shows the breakdown of the labor income, taxes, and output by type of effect.

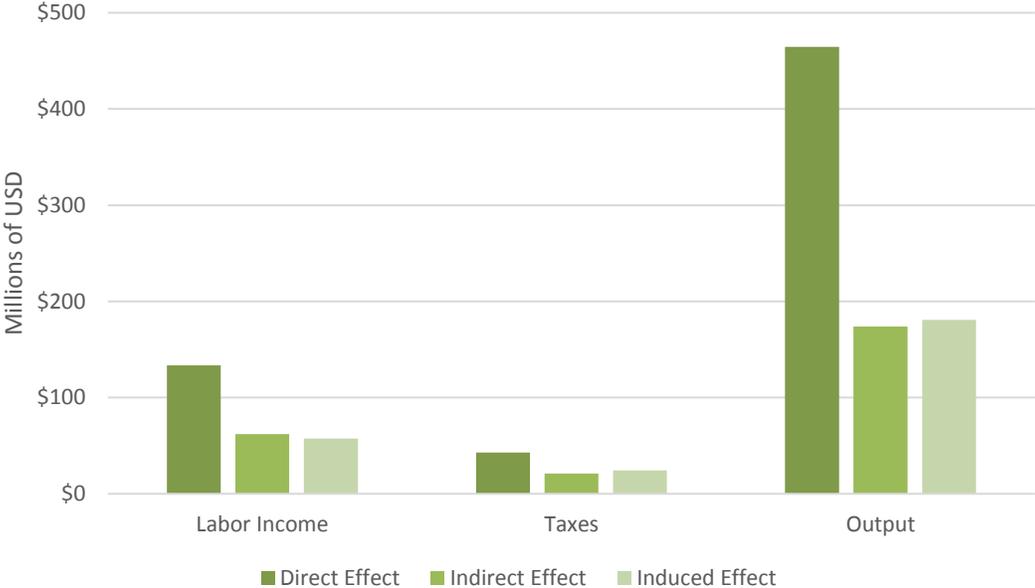
TAX IMPACT

Based on the IMPLAN® model, there was \$88.6 million in tax revenue associated with the activity of the companies in 2016. Of this, \$43.0 million (49%) was attributed to direct impact, \$21.1 million (24%) to indirect impact, and \$24.4 million (27%) to induced impact. Thirty-four percent of the tax impact was in state and local taxes (\$30.3 million) and 66% was in federal taxes (\$58.3 million).

OUTPUT IMPACT

Output impact is an estimate of the total change in the value of goods and services produced in Northeast Ohio due to the activities of the companies. Output impact amounted to \$818.8 million in 2016. Of that, \$464.4 million (57%) was accounted for by the direct production of goods and services by the companies. An additional \$173.7 million (21%) was indirect impact; goods and services produced in Northeast Ohio to support the activities of the companies. The induced impact of \$180.7 million (22%) measures the value of goods and services produced to support increased household demand.

Figure 2: Labor Income, Taxes, Output Impact Measures for Northeast Ohio, 2016



WOMEN AND MINORITY OWNED BUSINESS ACTIVITY IN NORTHEAST OHIO

This section of the report highlights the women and minority owned companies that are supported with funding and/or technical assistance through the ESP in Northeast Ohio. Examining the impact of the women and minority owned companies is a new section in the report this year reflecting JumpStart’s growing interest in targeting and supporting these businesses.

In Northeast Ohio, the women and minority owned and led companies had an employment impact of 2,127 jobs, \$125.3 million in labor income, \$44.2 million in taxes, and \$370.5 million in output (Table 2).

Table 2: Economic Impact of Women and Minority Owned Businesses Supported by the ESP in Northeast Ohio, 2016

Impact Type	Employment	Labor Income	Tax	Output
Direct Effect	940	\$68,494,652	\$22,464,645	\$201,324,950
Indirect Effect	530	\$28,380,435	\$9,671,884	\$79,707,094
Induced Effect	656	\$28,451,244	\$12,086,874	\$89,481,133
Total Effect	2,127	\$125,326,331	\$44,223,403	\$370,513,177

Notes: The economic impact is presented in 2017 dollars.
All numbers have been rounded to the nearest whole number.

ECONOMIC IMPACT ESTIMATES FOR ESP COMPANIES FOR OHIO

The economic impact for Ohio is based on the summation of the impact in the 21 counties in Northeast Ohio and an impact conducted on the companies' activities in the remaining 67 counties in Ohio.⁸ Hereafter, the supported portfolio and client companies will be referred to collectively as "the companies." Five indicators of impact are summarized for the state of Ohio: employment, labor income, taxes, and output. The impact results are summarized in Table 1 by direct, indirect, induced, and total effects.

EMPLOYMENT IMPACT

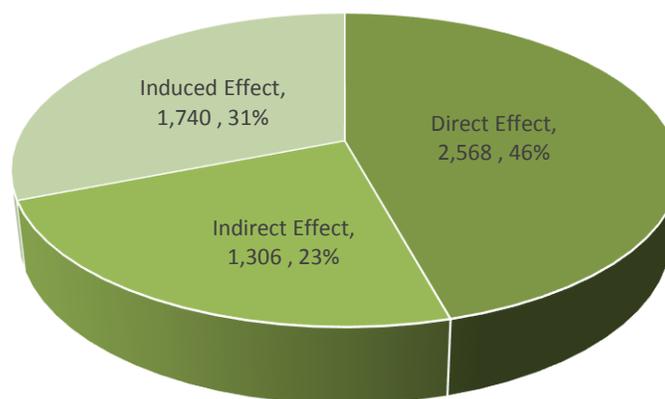
The total employment impact in 2016 in Ohio attributed to the companies amounted to 5,614 jobs (Table 3). Of these, 2,568 (46%) were the result of direct impact. An additional 1,306 jobs (23%) were created in industries supporting the companies, and 1,740 (31%) more jobs were created throughout the economy due to increased employee earnings (Figure 3).

Table 3: Economic Impact in Ohio, 2016

Impact Type	Employment	Labor Income	Tax	Output
Direct Effect	2,568	\$187,841,016	\$56,175,015	\$538,847,354
Indirect Effect	1,306	\$71,451,553	\$24,281,745	\$199,352,784
Induced Effect	1,740	\$75,445,790	\$31,997,145	\$238,057,746
Total Effect	5,614	\$334,738,359	\$112,453,905	\$976,257,884

Notes: The economic impact is presented in 2017 dollars.
All numbers have been rounded to the nearest whole number.

Figure 3: Employment in Ohio by Impact Measure, 2016



⁸ The 21-county region includes: Ashland, Ashtabula, Carroll, Columbiana, Crawford, Cuyahoga, Erie, Geauga, Holmes, Huron, Lake, Lorain, Mahoning, Medina, Portage, Richland, Stark, Summit, Trumbull, Tuscarawas, and Wayne counties.

LABOR INCOME IMPACT

The increase in household earnings created by the companies and their suppliers represents the labor income impact. In 2016, total household earnings in Ohio increased by \$334.7 million. Of this impact, \$187.8 million (56%) resulted from the direct effects of the companies' payroll, and \$71.4 million (21%) resulted from increased earnings in supplier industries in the state. The induced income impact of \$75.4 million (23%) was due to increased household earnings as employees of the companies and their suppliers spend their paychecks. Figure 4 shows the breakdown of the labor income, tax, and output impacts by type of effect.

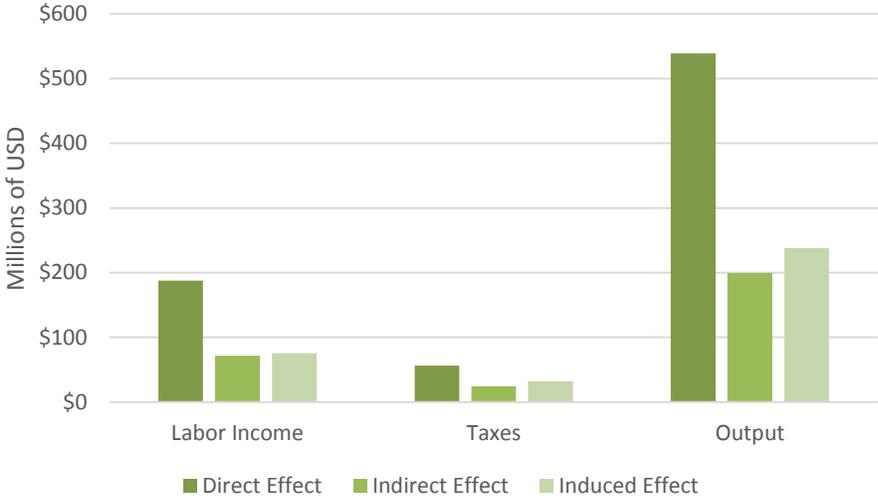
TAX IMPACT

Based on the IMPLAN® model, there was \$112.5 million in tax revenue associated with the activity of the companies in 2016. Of this, \$56.2 million (50%) was attributed to direct impact, \$24.3 million (22%) to indirect impact, and \$32.0 (28%) to induced impact. One-third of the tax impact was in state and local taxes (\$37.3 million) and two-thirds was in federal taxes (\$75.2 million).

OUTPUT IMPACT

Output impact is an estimate of the total change in the value of goods and services produced in Ohio due to the activities of the companies. Output impact amounted to \$976.3 million in 2016. Of that, the direct production of goods and services generated \$538.8 million (55%). An additional \$199.4 million (20%) was indirect impact—goods and services produced in the state to support the activities of the companies. The induced impact of \$238.1 million (25%) measures the value of goods and services produced in the state to satisfy the increased demand by households.

Figure 4: Labor Income, Taxes, and Output Impact Measures for Ohio, 2016



WOMEN AND MINORITY OWNED BUSINESS ACTIVITY IN OHIO

This section of the report highlights the women and minority owned companies that are supported with funding and/or technical assistance through the ESP in Ohio. Over 30% of the companies that JumpStart assists are owned or led by women and minorities.⁹ These businesses are in industries including *Software publishers, Adhesive manufacturing, Medical and diagnostic laboratories, and Specialized design services*, to name a few.

The women and minority owned companies had an overall employment impact in Ohio of 2,426 jobs in 2016 (Table 4). The direct jobs (1,082) had an impact of 590 indirect jobs (24%) in industries such as *Employment services, Wholesale trade, and Management of companies and enterprises*. In the induced effect 754 jobs (31%) are supported in industries including *Hospitals, Limited-service restaurants, and Real estate*. Additionally, the women and minority owned companies had a total labor income impact of \$144.5 million, a tax impact of \$50.7 million, and an output impact of \$422.2 million.

Table 4: Economic Impact of Women and Minority Owned Businesses Supported by the ESP in Ohio, 2016

Impact Type	Employment	Labor Income	Tax	Output
Direct Effect	1,082	\$79,916,854	\$25,924,668	\$229,863,873
Indirect Effect	590	\$31,902,835	\$10,878,629	\$89,414,561
Induced Effect	754	\$32,677,079	\$13,869,272	\$102,953,602
Total Effect	2,426	\$144,496,768	\$50,672,569	\$422,232,036

Notes: The economic impact is presented in 2017 dollars.
All numbers have been rounded to the nearest whole number.

⁹ <https://www.jumpstartinc.org/inclusion/>

ECONOMIC IMPACT ESTIMATES OF EXITED ESP COMPANIES FOR OHIO

This section of this report highlights the ESP companies that have experienced an exit (or liquidity event), and thus have graduated out of a need for entrepreneurial support. Again, this is a new section of analysis which has become important as many of the initial investments made have resulted in successful companies which are no longer captured in the analysis of the companies currently receiving support from the ESP. There were 26 companies included in this group in various industries including *Pharmaceutical preparation manufacturing, Surgical appliance and supplies manufacturing, Software publishers, and Scientific research and development services*.

The exited companies had an overall employment impact in Ohio of 2,675 jobs in 2016 (Table 5). The jobs with the exited companies (1,078 direct jobs) had an impact of 653 indirect jobs (24%) in industries such as *Management of companies and enterprises, Wholesale trade, and Employment services*. In the induced effect 945 jobs (35%) are supported in industries including *Hospitals, Limited-service restaurants, and Full-service restaurants*. Additionally, the exited companies had a total labor income impact of \$179.1 million, a tax impact of \$61.7 million, and an output impact of \$515.8 million.

Table 5: Economic Impact of ESP Company Exits in Ohio, 2016

Impact Type	Employment	Labor Income	Tax	Output
Direct Effect	1,078	\$95,288,984	\$29,890,289	\$265,439,572
Indirect Effect	653	\$42,564,842	\$14,402,579	\$118,826,067
Induced Effect	945	\$41,217,995	\$17,434,451	\$131,492,806
Total Effect	2,675	\$179,071,821	\$61,727,319	\$515,758,445

Notes: The economic impact is presented in 2017 dollars.

All numbers have been rounded to the nearest whole number.

ECONOMIC IMPACT ESTIMATES FOR ESP COMPANIES RESPONDING YEARLY 2011 – 2016

The pool of companies that have responded to the survey each year changes in both size and makeup. To examine the employment change in companies over time, an analysis was conducted on 34 companies that responded to the survey in each of the last six years with activity in Northeast Ohio and Ohio. In Ohio, this group of companies increased their direct employment by 698, their expenditures by \$171.3 million, and their payroll by \$37.0 million between 2011 and 2016.

This section will examine the economic impact of this cohort of firms over time on the economy of Ohio and Northeast Ohio.

SIX YEAR RESPONDENT ACTIVITY IN OHIO

These 34 companies had a total impact in Ohio in 2016 of 2,404 jobs, \$152.1 million in labor income, \$49.8 million in taxes, and \$457.6 million in output. Between 2011 and 2016, these companies have seen a 107% increase in employment impact, a 49% increase in labor income impact, a 64% increase in tax impact, and a 147% increase in output impact (Table 6). All measures saw a decrease in activity in Ohio between 2015 and 2016 ranging from a loss of 32% to 49%.

Table 6: Economic Impact Comparison for Ohio, 2011-2016

	Employment ¹⁰	Labor Income	Total Tax	Output
2011	1,163	\$102,137,424	\$30,291,118	\$185,066,300
2012	1,278	\$82,107,766	\$26,596,915	\$194,913,108
2013	1,929	\$169,139,845	\$51,787,255	\$332,005,370
2014	1,573	\$100,046,799	\$33,987,365	\$281,077,195
2015	3,534	\$235,665,375	\$82,415,137	\$895,997,581
2016	2,404	\$152,080,090	\$49,765,593	\$457,580,500
Total		\$841,177,299	\$274,843,383	\$2,346,640,053

Notes: The economic impact is presented in actual dollars.
All numbers have been rounded to the nearest whole number.

¹⁰ Employment cannot be summed across years as the same jobs exist over time.

SIX YEAR RESPONDENT ACTIVITY IN NORTHEAST OHIO

Between 2011 and 2016, the 34-company cohort increased their direct employment impact in Northeast Ohio by 277, their expenditures by \$166.3 million, and their payroll by \$24.5 million.

These companies had a total impact in Northeast Ohio in 2016 of 1,544 jobs, \$94.3 million in labor income, \$33.7 million in taxes, and \$356.3 million in output. Over the last six years these companies saw a 91% increase in employment impact, an 85% increase in labor income impact, an 101% increase in tax impact, and a 177% increase in output impact (Table 7). The percent change from the last year was between 4 and 8 percent for all measures except for a 32% change in output.

Table 7: Economic Impact Comparison for Northeast Ohio, 2011-2016

	Employment ¹¹	Labor Income	Total Tax	Output
2011	808	\$51,011,149	\$16,818,419	\$128,762,217
2012	895	\$57,392,559	\$18,391,123	\$127,193,238
2013	1,393	\$125,797,524	\$38,742,446	\$228,029,222
2014	1,086	\$66,494,484	\$23,428,981	\$184,659,480
2015	1,426	\$88,162,002	\$31,531,417	\$269,514,220
2016	1,544	\$94,291,881	\$33,737,417	\$356,308,617
Total		\$483,149,599	\$162,649,803	\$1,294,466,994

Notes: The economic impact is presented in actual dollars.

All numbers have been rounded to the nearest whole number.

¹¹ Employment cannot be summed across years as the same jobs exist over time.

ECONOMIC IMPACT ESTIMATES FOR JUMPSTART PORTFOLIO COMPANIES FOR OHIO & NORTHEAST OHIO

This section of the report highlights those companies that are JumpStart portfolio companies, meaning they received funding from JumpStart or the North Coast Angel Fund (NCAF).

PORTFOLIO ACTIVITY IN OHIO

The portfolio companies had an employment impact of 2,577 jobs in Ohio in 2016 (Table 8). Over 1,100 (45%) are direct jobs with portfolio companies; the remainder are with supplier companies and industries that support households. The portfolio companies include software publishers, internet publishing and broadcasting, insurance, metal coating, surgical and medical instrument manufacturing, and electromedical and electrotherapeutic apparatus manufacturing. Because of these direct jobs with the portfolio companies, an additional 1,412 jobs (55%) are created in other sectors of the economy including insurance agencies, brokerages, and related activities, employment services, wholesale, retail, restaurants, real estate, and hospitals. Additionally, the JumpStart portfolio companies had a total labor income impact of \$160.5 million, a tax impact of \$51.5 million, and an output impact of \$465.4 million.

Table 8: Economic Impact of JumpStart Portfolio Companies in Ohio, 2016

Impact Type	Employment	Labor Income	Tax	Output
Direct Effect	1,165	\$92,461,034	\$25,358,814	\$262,035,900
Indirect Effect	581	\$31,997,934	\$10,903,108	\$89,449,222
Induced Effect	831	\$36,049,275	\$15,276,186	\$113,928,317
Total Effect	2,577	\$160,508,243	\$51,538,108	\$465,413,439

Notes: The economic impact is presented in 2017 dollars.
All numbers have been rounded to the nearest whole number.

PORTFOLIO ACTIVITY IN NORTHEAST OHIO

Table 9 shows the economic impact estimates for the JumpStart portfolio companies on Northeast Ohio. Between 40% and 59% of the impact was in the direct effect for each measure of economic impact, between 20% and 29% was in the indirect effect, and between 20% and 31% was in the induced effect. This leads to a total economic impact of the portfolio companies in Northeast Ohio of 1,714 jobs, labor income of \$102.5 million, taxes of \$35.6 million, and output of \$369.1 million.

Table 9: Economic Impact of JumpStart Portfolio Companies in Northeast Ohio, 2016

Impact Type	Employment	Labor Income	Tax	Output
Direct Effect	687	\$52,248,832	\$16,477,994	\$220,375,493
Indirect Effect	490	\$26,982,789	\$9,227,988	\$75,547,771
Induced Effect	537	\$23,259,660	\$9,881,952	\$73,153,677
Total Effect	1,714	\$102,491,281	\$35,587,934	\$369,076,941

Notes: The economic impact is presented in 2017 dollars.
 All numbers have been rounded to the nearest whole number.