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2014 Economic Impact Of Companies Funded and/or Assisted By The Northeast Ohio Entrepreneurial Signature Program

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April 2015

**2014 ECONOMIC
IMPACT OF COMPANIES
FUNDED AND/OR
ASSISTED BY THE
NORTHEAST OHIO
ENTREPRENEURIAL
SIGNATURE PROGRAM**

**CENTER FOR
ECONOMIC
DEVELOPMENT**

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TABLE OF CONTENTS

Executive Summary.....	3
Economic Impact on Northeast Ohio.....	3
Economic Impact on Ohio.....	4
Introduction	5
Methodology.....	7
Input-Output Method	7
Economic Impact Defined	7
Impact Study Data.....	8
Economic Impact Estimates.....	10
Economic Impact Estimates for Northeast Ohio	10
Employment Impact.....	10
Labor Income Impact	11
Value Added Impact.....	11
Output Impact.....	11
Tax Impact.....	12
Economic Impact Estimates for Ohio.....	13
Employment Impact.....	13
Labor Income Impact	14
Value Added Impact.....	14
Output Impact.....	14
Tax Impact.....	15
2010 – 2013 Comparison	16
Growth Year Over Year	16

LIST OF TABLES & FIGURES

Table 1: Economic Impact in Northeast Ohio, 2014	10
Figure 1: Employment in Northeast Ohio by Impact Measure, 2014.....	11
Figure 2: Labor Income, Value Added, Output and Tax Impact Measures for Northeast Ohio, 2014	12
Table 2: Economic Impact in Ohio, 2014	13
Figure 3: Employment in Ohio by Impact Measure, 2014	14
Figure 4: Labor Income, Value Added, Output, and Tax Impact Measures for Ohio, 2014	15

EXECUTIVE SUMMARY

This report measures the economic impact of early-stage companies that have been supported by JumpStart Inc. and its partners in the Northeast Ohio Entrepreneurial Signature Program (ESP) in 2014.¹ Companies included in this report have received significant technical assistance and direct investment funding from entrepreneurial support organizations in the ESP or purely technical assistance. It is important to note that North Coast Angel Fund invests in companies throughout Ohio and the economic outcomes generated by these firms are included in the statewide economic impact reported here; while the remainder of the ESP's entrepreneurial acceleration activities are confined geographically to the 21 counties of Northeast Ohio.

The Center for Economic Development at Cleveland State University's Levin College of Urban Affairs prepared this economic impact study for JumpStart. In total, 358 JumpStart and/or ESP companies were surveyed for this study. Of those 358, 105 companies were excluded for insufficient reporting, thus leaving 253 companies which were included in the impact analysis. Of these, 121 received funding and significant business assistance from an ESP partner (including JumpStart) and 132 received significant business assistance but no direct funding from an ESP partner.

ECONOMIC IMPACT ON NORTHEAST OHIO

The economic impact on Northeast Ohio by 243² companies funded and/or assisted by ESP partners includes the following impact measures:

- Employment Impact: 2,408 jobs
- Labor Income Impact: \$142.0 million
- Value Added Impact: \$214.9 million
- Output Impact: \$369.5 million
- Tax Impact: \$46.2 million
 - \$15.2 million to the state and local governments
 - \$31.0 million to the federal government

¹ As defined by its primary funder, Ohio Third Frontier, this ESP operates across 21 counties of Northeast Ohio. Its goal is to significantly 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 is the lead organization for the Northeast Ohio ESP.

² Ten companies had 2014 activity in Ohio but outside Northeast Ohio, so the total number of companies included in the analysis for Northeast Ohio is 243.

ECONOMIC IMPACT ON OHIO

The economic impact on Ohio by 253 companies funded and/or assisted by ESP partners includes the following impact measures:

- Employment Impact: 3,096 jobs
- Labor Income Impact: \$186.6 million
- Value Added Impact: \$293.9 million
- Output Impact: \$509.0 million
- Tax Impact: \$60.9 million
 - \$19.6million to the state and local governments
 - \$41.3 million to the federal government

INTRODUCTION

This report measures the calendar year 2014 economic impact of companies that have been supported by JumpStart Inc. and/or its partners in the Entrepreneurial Signature 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, Austen BioInnovation Institute in Akron (ABIA), BioEnterprise, Bizdom, Braintree Business Development Center, Great Lakes Innovation and Development Enterprise (GLIDE), LaunchHouse, Manufacturing Advocacy & Growth Network (MAGNET), NorTech,³ 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 total, 358 JumpStart and/or other ESP companies responded to the survey request from JumpStart. Of those 358, three were excluded based on lack of information from the survey and 102 were excluded from the impact analysis because they reported no employment, payroll, or expenditures, suggesting that they do not yet create an economic impact. The results described in this report are for calendar year 2014 and they report on the impact of 253 startup companies; of these, 121 were funded and received significant business assistance from an ESP partner and 132 received significant business assistance but no direct funding from an ESP partner. The 121 companies that received funding are referred to as portfolio companies. The 132 companies that solely received business assistance are referred to as client companies.

³ As of November 10, 2014, NorTech has merged with TeamNEO.

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 *2013 Economic Impact of Jumpstart Inc. Portfolio and Client Companies* which was also conducted by the Center for Economic Development.⁴ The *Methodology* section of this report provides details on how data were collected and other operational issues. The only difference in the methodology of the report is that the IMPLAN sectors used in this report reflect the new sectoring scheme based on the 2012 North American Industrial Classification System (NAICS) definitions.

⁴ The 2013 study can be found online http://urban.csuohio.edu/publications/center/center_for_economic_development/2013_Economic_Impact_of_Companies.pdf.

METHODOLOGY

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 the 2013 data, which is the most recent economic impact assessment software system and data package released by IMPLAN Group LLC.⁶ The user can develop sophisticated models of local economies 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.

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 estimates the benefits

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.

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.
- *Value added impact* estimates the value of goods and services produced in the economy less intermediary goods and services, such as materials, utilities, and other goods used in the production process. Value added impact is comparable to gross regional product.
- *Output impact* measures the total value of goods and services produced in the economy.
- *Taxes* include federal taxes as well as state and local taxes.

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 local 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 calendar year 2014. The economic impact study presented in this report uses company data for Northeast Ohio and Ohio. All spending outside of Ohio is excluded from the study.

The companies that responded to the survey received a combined total of 44,912 hours of pro-bono technical assistance from the ESP in 2014 and at least 685,305 hours of pro-bono technical assistance since they started working with one of the organizations. On average, each company that responded to the survey received 127 hours of technical assistance in 2014 and 240 hours of technical assistance since their first engagement with an ESP partner.

Of the 253 young companies that responded to the survey and reported having staff, 68% had between one and ten employees and 32% had over 11 employees. However, several of the companies are maturing and becoming larger employers: five companies employ more than 50 people; one of which employees over 160 people.

Following the collection of data from the survey, JumpStart collected additional data via telephone interviews pertaining to Cleveland State University's follow-up questions on some companies' employment, payroll, and expenditures. An official member of each company's management team, legally allowed to verify the accuracy of company data, provided and

confirmed the information.⁷ Cleveland State University also checked company-level data by ensuring consistency between the different variables and geographies.

In total, JumpStart collected complete survey data from 358 companies. Of these, 3 were excluded for missing information and 102 were excluded because of lack of economic activity in Ohio. Of the 253 companies included in the impact analysis, 121 (portfolio companies) were funded and received significant business assistance from an ESP partner and 132 (client companies) received significant business assistance but no direct funding from an ESP partner.

Each of these 253 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®.

⁷ The exact language as noted on the survey was "I hereby certify that I am authorized to provide the patent, employment, and financial information for my company and that the survey information reported herein is correct for the period stated and is consistent with any information reported to government entities for payroll, tax, unemployment insurance, and workers compensation purposes."

ECONOMIC IMPACT ESTIMATES

ECONOMIC IMPACT ESTIMATES FOR NORTHEAST OHIO

This study reports the economic impact of the companies funded and/or assisted by Northeast Ohio ESP partner organizations. Impact is estimated in terms of five measures: employment, labor income, value added, output and taxes. Hereafter, the supported portfolio and client companies will be referred to collectively as “the companies.”

The direct economic impact of the companies on Northeast Ohio in 2014 included a total of 1,194 employees, payroll of \$83.4 million, value added of \$118.0 million, an output of \$198.0 million, and tax impact of \$24.5 million. Table 1 summarizes the impact results of the five measures for 2014 by direct, indirect, induced and total effects.

Table 1: Economic Impact in Northeast Ohio, 2014

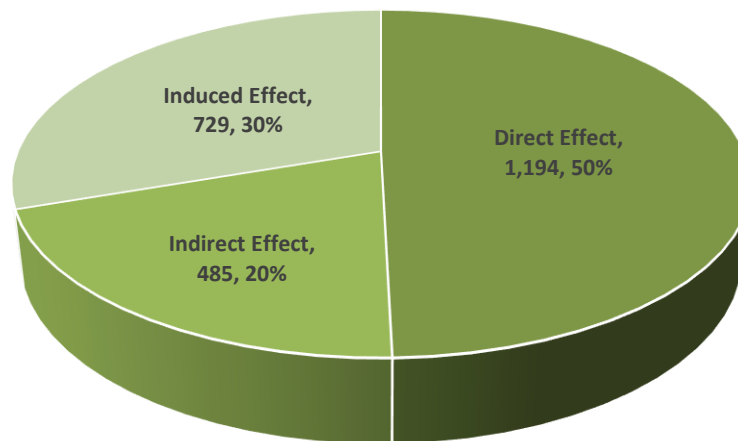
Impact Type	Employment	Labor Income	Value Added	Output	Tax
Direct Effect	1,194	\$83,358,060	\$117,945,481	\$197,982,696	\$24,481,274
Indirect Effect	485	\$27,421,211	\$42,570,608	\$78,028,871	\$9,226,377
Induced Effect	729	\$31,261,620	\$54,364,875	\$93,509,531	\$12,517,283
Total Effect	2,408	\$142,040,891	\$214,880,964	\$369,521,098	\$46,224,934

Notes: The economic impact is presented in 2015 dollars.

All numbers have been rounded to the nearest whole number.

Employment Impact

The total employment impact in Northeast Ohio attributed to the companies amounted to 2,408 jobs. Of these, 1,194 (50%) were the result of direct impact – the employees of the companies (Figure 1). An additional 485 jobs (20%) were created in industries supporting the companies, and 729 (30%) more jobs were created throughout the economy because of employees’ spending due to their increased earnings.

Figure 1: Employment in Northeast Ohio by Impact Measure, 2014

Labor Income Impact

Every job created by the companies and their suppliers generates earnings for local households. In 2014, total household earnings in Northeast Ohio increased by \$142.0 million. Of this impact, \$83.4 million (59%) resulted from the direct effects of the companies' payroll, and \$27.4 million (19%) resulted from increased earnings in other industries in the region that supply the companies. The induced income impact of \$31.3 million (22%) was due to increased household spending throughout the economy because of their additional earnings. Figure 2 shows the breakdown of the labor income, value added, output and tax impacts by type of effect.

Value Added Impact

Value added impact measures the value of goods and services produced in the economy less intermediate goods and services; it is equivalent to the definition of gross regional product. In 2014, the value added impact from the companies was \$214.9 million. Of that, \$118.0 million (55%) was attributed to direct impact, \$42.6 million (20%) to indirect impact, and \$54.4 (25%) to induced impact.

Output Impact

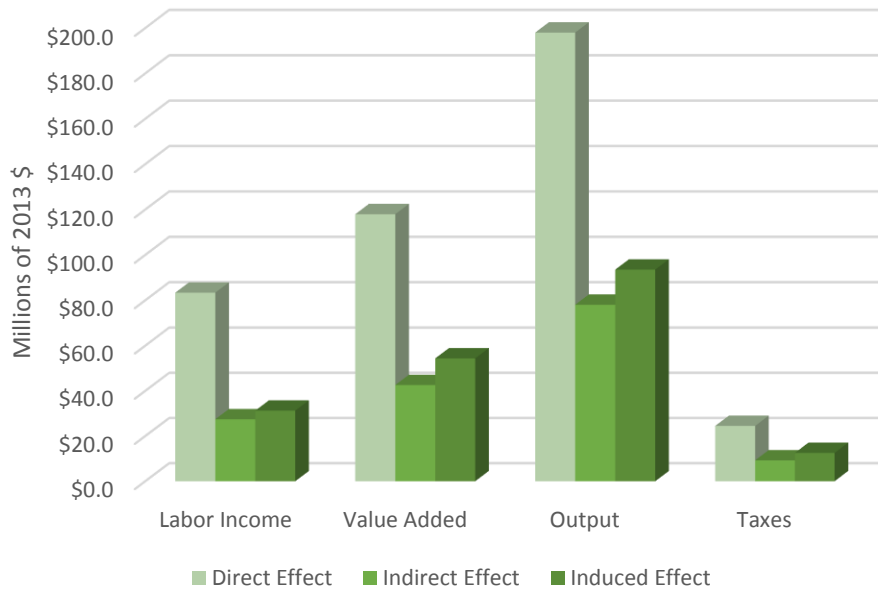
Output measures the total value of goods and services produced in the region as a result of the spending of the companies. Output impact provides an estimate of the total change in output produced in Northeast Ohio because of the companies' activities in 2014. Output impact amounted to \$369.5 million. Of that, the direct production of goods and services by the companies accounted for \$198.0 million (54%). An additional \$78.0 million (21%) was indirect impact—goods and services produced regionally to support the activities of the companies. The induced impact of \$93.5 million (25%) measures the value of goods and services produced

in the region to satisfy the increased demand by households working for the companies and their suppliers.

Tax Impact

There was \$46.2 million in tax revenue associated with the activity of the companies in 2014. Of the tax impact, \$24.5 million (53%) was attributed to direct impact, \$9.2 million (20%) to indirect impact, and \$12.5 (27%) to induced impact. Thirty-three percent (\$15.2 million) of the tax impact was in state and local taxes and 67% (\$31.0 million) of the tax impact was in federal taxes.

Figure 2: Labor Income, Value Added, Output and Tax Impact Measures for Northeast Ohio, 2014



ECONOMIC IMPACT ESTIMATES FOR OHIO

The economic impact for Ohio is based on the summation of the impact in Northeast Ohio discussed earlier and an impact conducted on the companies' activities in the remaining 67 counties in Ohio. The same five indicators of impact used to look at Northeast Ohio are summarized for the entire state of Ohio during 2014: employment, labor income, value added, output and taxes. The impact results are summarized in Table 2 by direct, indirect, induced and total effects.

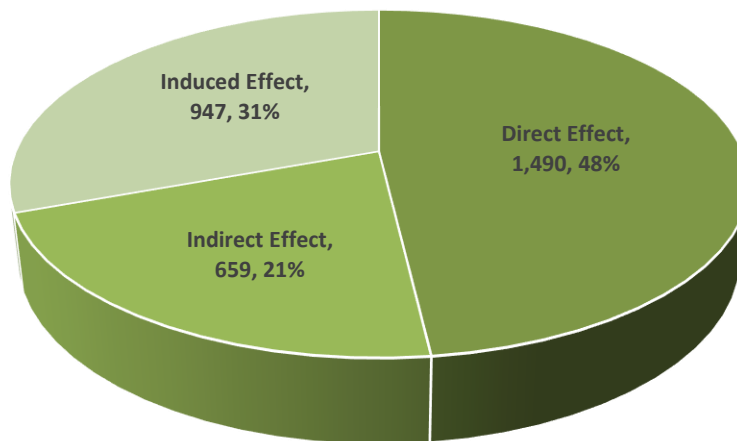
Table 2: Economic Impact in Ohio, 2014

Impact Type	Employment	Labor Income	Value Added	Output	Tax
Direct Effect	1,490	\$107,048,412	\$163,763,235	\$278,819,391	\$31,755,948
Indirect Effect	659	\$38,960,878	\$59,563,527	\$108,496,123	\$12,945,780
Induced Effect	947	\$40,580,292	\$70,594,639	\$121,720,412	\$16,223,116
Total Effect	3,096	\$186,589,582	\$293,921,401	\$509,035,926	\$60,924,844

Notes: The economic impact is presented in 2015 dollars.
All numbers have been rounded to the nearest whole number.

Employment Impact

The total employment impact in 2014 in Ohio attributed to the companies amounted to 3,096 jobs. Of these, 1,490 (48%) were the result of direct impact. An additional 659 jobs (21%) were created in industries supporting the companies, and 947 (31%) more jobs were created throughout the economy due to increased employee earnings (Figure 3).

Figure 3: Employment in Ohio by Impact Measure, 2014

Labor Income Impact

The increase in household earnings created by the companies and their suppliers represents the labor income impact. In 2014, total household earnings in Ohio increased by \$186.6 million. Of this impact, \$107.0 million (57%) resulted from the direct effects of the companies' payroll, and \$39.0 million (21%) resulted from increased earnings in other industries in the state that supply the companies. The induced income impact of \$40.6 million (22%) was due to increased household earnings throughout the economy. Figure 4 shows the breakdown of the labor income, value added, output and tax impacts by type of effect.

Value Added Impact

Value added impact corresponds to gross regional product. In 2014, the value added impact in the state from the companies was \$293.9 million. Of that, \$163.8 million (56%) was attributed to direct impact, \$59.6 million (20%) to indirect impact, and \$70.6 million (24%) to induced impact.

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 in 2014 amounted to \$509.0 million. Of that, \$278.8 million (55%) was accounted for by the direct production of goods and services by the companies. An additional \$108.5 million (21%) was indirect impact—goods and services produced in the state to support the activities of the companies. The induced impact of \$121.7 million (24%) measures the value of goods and services produced in the state to satisfy the increased demand by households.

Tax Impact

Based on the IMPLAN model, there was \$60.9 million in tax revenue associated with the activity of the companies in 2014. Of the tax impact, \$31.8 million (52%) was attributed to direct impact, \$12.9 million (21%) to indirect impact, and \$16.2 (27%) to induced impact. Thirty-two percent of the tax impact was in state and local taxes (\$19.6 million) and 68% was in federal taxes (\$41.3 million).

Figure 4: Labor Income, Value Added, Output, and Tax Impact Measures for Ohio, 2014



2011 – 2014 COMPARISON

GROWTH YEAR OVER YEAR

The pool of companies that respond to the survey each year changes in both size and makeup. In order to examine the change in companies over time, an analysis was conducted on 54 companies that responded in each of the last four years with activity in Northeast Ohio. This group of companies increased their aggregated Northeast Ohio employment by 104, payroll by \$5.9 million and expenditures by \$32.3 million.

These companies had a total impact in Northeast Ohio in 2014 of 1,470 jobs, \$89.4 million in labor income, \$141.5 million in value added impact, \$238.8 million in output, and \$30.3 million in taxes. Between 2011 and 2014, these companies saw a 21% increase in employment impact, an 18% increase in labor income impact, a 22% increase in value added impact, a 29% increase in output impact, and a 24% increase in tax impact. By 2014, these companies accounted for 61%-66% of the impact by all companies included in the study.

There were 62 companies that responded in each year from 2011-2014 with economic activity in Ohio. This group of companies increased their aggregated employment by 238 and their expenditures by \$79.5 million, but decreased their payroll by \$29.6 million between 2011 and 2014.

These 62 companies had a total impact in Ohio in 2014 of 2,015 jobs, \$125.8 million in labor income, \$204.4 million in value added impact, \$354.2 million in output, and \$42.0 million in taxes. Between 2011 and 2014, these companies have seen an 18% increase in employment impact, a 15% decrease in labor income impact, no change in value added impact, a 37% increase in output impact, and a 2% decrease in tax impact. By 2014, these companies accounted for 65%-70% of the impact on Ohio by all companies included in the study.