



C. William
Swank Program
in Rural-Urban Policy

SMALL BUSINESS & ENTREPRENEURSHIP IN OHIO

PROMOTING PROSPERITY BY GROWING FROM WITHIN

Mark Rembert

Department of Agricultural, Environmental, and Development Economics

Mark Partridge, Swank Professor of Rural-Urban Policy

Department of Agricultural, Environmental, and Development Economics

Bo Feng

Department of Agricultural, Environmental, and Development Economics

Swank Program in Rural-Urban Policy

August 2016

Mark Partridge



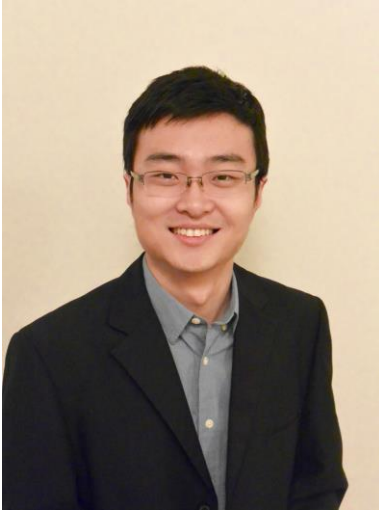
Mark Partridge is the Swank Chair of Rural-Urban Policy at The Ohio State University. Professor Partridge is Co-Editor of the *Journal of Regional Science* and is the Co-Editor of new the *Springer Briefs in Regional Science* as well as serves on the editorial boards of eight journals including *Papers in Regional Science* and *Annals of Regional Science*. He has published over 125 peer-reviewed scholarly papers, scores of other reports, and coauthored the book *The Geography of American Poverty: Is there a Role for Place-Based Policy?* His research has been recently rated the highest ranked in the world in regional science. He has consulted with organizations and governments around the world and served on a National Academy of Sciences panel on defining rural areas. Professor Partridge has received research funding from many sources including the Appalachian Regional Commission, Brookings Institution, European Commission, Infrastructure Canada, Lincoln Institute of Land Policy, U.S. National Science Foundation, U.S. National Oceanic and Atmospheric Administration, U.S. Department of Agriculture, and Social Science and Humanities Research Council of Canada. His research includes investigating rural-urban interdependence and regional growth and policy. Dr. Partridge served as President of the Southern Regional Science Association; is Fellow of the Southern Regional Science Association and Fellow of the Regional Science Association International; and was Chair of the North American Regional Science Council.

Mark Rembert



Mark Rembert is a PhD student in the Department of Agricultural, Environmental, and Development Economics at The Ohio State University and serves as the C. William Swank Research Associate. Mark is the co-founder of Energize Clinton County, and served as the Executive Director of the Wilmington-Clinton County Chamber of Commerce from 2011 to 2016. In his dual roles with ECC and the Chamber of Commerce, Mark led economic development efforts that combine grassroots action with traditional business retention and attraction, engaging citizens, local officials, and businesses of all sizes. These efforts have targeted economic and social issues facing rural communities, including human capital development, the brain drain, entrepreneurship, and local food systems. Mark's work in Wilmington has gained recognition from the U.S. Senate, U.S. Department of Agriculture, national media and conferences, and communities across the country as a model for community and economic development. Mark also serves on the board of trustees for the CMH Regional Health System in Wilmington, and the Wilmington Community Improvement Corporation.

Bo Feng



Bo Feng is a PhD student in the Department of Agricultural, Environmental, and Development Economics at The Ohio State University. He received a B.S. degree in Finance from Shanghai Jiao Tong University (Shanghai, China), and a M.S. degree in Economics from the University at Buffalo-SUNY. His research focuses on state and local fiscal policies and regional development programs. His interests also include related topics such as persistent poverty, intergenerational mobility, and migration. He teaches China's Economic Reform and Globalization at OSU. Prior to joining OSU, he was an assistant research fellow in Urban Economy Institute at Central University of Finance and Economics (Beijing, China). As a researcher in China, he conducted extensive studies on the strategic planning of local economic development, and advised local governments on various issues regarding development strategies.

About the C. William Swank Program on Rural-Urban Policy

The C. William Swank Program in Rural-Urban Policy is a nationally and internationally recognized research and outreach program focused on priority issues related to rural and urban communities and their growth and prosperity.

Led by Professor Mark Partridge, the Swank Program combines innovative approaches in economic theory, planning, advanced statistical research, and geographical information systems to create products that can be used by the academic community, stakeholders, policymakers, students, and the public. In turn, the Swank Program will help inform and facilitate teaching and student research at Ohio State and elsewhere.

The Swank Program conducts and supports research, teaching, and outreach within the College of Food, Agricultural, and Environmental Sciences; the Ohio Agricultural Research and Development Center; and Ohio State University Extension.

Learn more about the C. William Swank Program on Rural-Urban Policy at <http://aede.osu.edu/swankprogram>

Contents

Executive Summary.....	5
Introduction.....	7
I. Small Business Job Creation: Myth or Reality.....	8
II. Measuring Small Business Activity.....	11
III. Ohio’s Small Business Economy in the National Context.....	21
IV. Small Business Economy in Ohio’s Counties.....	24
V. Conclusion & Policy Discussion.....	27
Expand Entrepreneurial Opportunities.....	27
Consider the Tradeoffs of Ohio’s Economic Development Incentive System.....	29
Focus on Population Growth.....	30
References.....	32

Executive Summary

Small businesses and entrepreneurs have long been recognized for the important role they play in our economy. As recently as the first quarter of 2015, small businesses with fewer than 50 employees accounted for more than a quarter of total employment in Ohio, while nearly one in ten jobs were in businesses five years old and younger. Yet, even more important than the total job numbers, small businesses and entrepreneurs play a critical role in the dynamic evolution of the economy through job creation and job destruction. Simply, small business and new business development is a lot like a lottery; while many won't be successful, if there are enough small business start-ups, the greater the chance that one will be successful and create scores of jobs and wealth. Even if many small start-ups fail, a key advantage is that a greater intensity of start-ups builds up a culture that celebrates entrepreneurship and better informs government as to how to create a climate to foster their success.

To better understand the health and vitality of Ohio's economy, we explore and evaluate the health of small businesses and start-up economies. Our findings provide reason for concern about the health of the Ohio economy. On every metric, Ohio ranks among the states with the smallest share of employment in small businesses and new businesses. To take measure of the vitality of Ohio's small businesses and entrepreneurs, we also consider the rates of job creation and job destruction, a measure of economic dynamism. We find that Ohio's small businesses and new businesses lack dynamism when compared to the U.S. as a whole, creating and destroying fewer jobs in 2014 than would be expected. Our analysis suggests that just in 2014 alone, if Ohio small businesses had grown at the national average, there would have been 8,000 more net jobs created.

Much of our analysis relies on data from the Quarterly Workforce Indicators (QWI) which provides quarterly measures of business activity by firm size and firm age at the state, metro, and county levels. One motivating factor for undertaking this analysis is the increased quality and availability of data on small business and start-ups provided by the QWI. There are two reasons why we believe this advancement is important to both state and local policymakers. First, this data now provides opportunities for evaluating the performance of small businesses and start-ups over time, and at the regional level. This should aid policymakers in better tracking the performance of regional economies. Second, advancements in data on small business and start-ups help to reduce the likelihood of drawing incorrect conclusions from the data. Limitations in data availability made it difficult to explore the performance of small businesses and entrepreneurs over time. These data limitations led to biased results in previous research that informed the common refrain repeated by policymakers and the media that small businesses generally create the vast majority of jobs. The emergence of new data and more reliable statistical techniques have led to more accurate accounts for the drivers of job creation, showing that young firms, which also tend to be small firms, are responsible for the disproportionate share of job creation that was previously attributed to small businesses generally.

We explore the economics literature on small business and entrepreneurship and offer several possible explanations for Ohio's lagging performance. The most likely cause is Ohio's slow population growth and net out-migration which have been shown to be closely linked to entrepreneurial activity. Yet, a growing body of research on small business and entrepreneurial success suggests that the negative effect of low population growth has been compounded by Ohio's historic reliance, and present day emphasis, on sectors like manufacturing with a high concentration of large employers which have been shown to crowd out and depress small business and entrepreneurial activity. Nevertheless, we also point to positive trends such as the regional

organizations that foster small business start-ups and tax cuts that favor small businesses without picking winners across “favored” firms or sectors.

Drawing from the economics literature, we make three policy recommendations aimed at increasing the vitality of Ohio’s small business and entrepreneurial sectors. First, the state should consider expanding programs which provide young people with entrepreneurial experiences; growing up working in a small business as a young person has been shown to translate into entrepreneurial success as an adult. Second, the state’s economic development system must increase its understanding and awareness of the tradeoffs inherent in its policies. For example, economic development programs in Ohio, like most states, favor large firms, for which we describe such effects in the state’s job tax credit program to provide some context. Another important step highlighted in the report is to follow the lead of states like Missouri and Connecticut which regularly complete empirical analysis of their economic development programs to estimate the potential in-direct costs to small businesses and entrepreneurs created by these programs. Finally, we recommend a broader economic development strategy which focuses specifically on strategies aimed at growing the population to create new opportunities for small business and entrepreneurs. While policymakers typically assume that people follow jobs, the economics literature on migration has shown that amenities drive much of the interregional migration in the U.S.. Thus, economic development policies aimed at increasing the population should focus as much on investing in amenities and quality of life in Ohio as they do on industrial attraction. In this, we are advising that instead of picking sectors or picking (big) firms, the state should create a climate for which all successful entrepreneurs thrive and let them pick the industry or technology that will be profitable. Overall, while a focus on new firms and small businesses may not seem as flashy as cutting a ribbon for a new large facility, the payoffs are likely to be larger in ensuring a prosperous future for Ohio’s families and communities.

Introduction

From the “Mom & Pop” business on Main Street, to the tech start-up in Silicon Valley, small businesses and entrepreneurs loom large in our economy. Politicians and the media often adopt soaring rhetoric when talking about the honored role of small businesses and entrepreneurs.

Undoubtedly, much of the focus on small businesses and entrepreneurs is merited. Small businesses and entrepreneurs serve vital roles in the economy. Small businesses sell many goods and services that are consumed on a daily basis, while entrepreneurs provide the economy with a dynamic, driving force. Small and new businesses create a disproportionate share of jobs and unlike the typical case for large firms, small business development is one way for both rural and urban communities to build their economies from within rather than hope to entice outsiders to come. This type of development is one way that struggling regions turn around (Stephens & Partridge, 2011). Likewise, new and small businesses are less likely to relocate or outsource their products in the near future, while they help diversify economies from economic events such as a major plant closings or the decline of what was a prosperous industry.

To take seriously the importance of small businesses and entrepreneurs we must look beyond rhetoric that can cloud reality, and evaluate the health of these businesses with data. As Ohio continues to lag the rest of the country in employment growth¹, understanding the role of small businesses and entrepreneurs in shaping the state’s economic growth is vital for policymakers and business leaders.

In Sections I and II, we offer a discussion aimed at helping policymakers make more informed evaluations of small business research and data. We review the oft-cited study that first asserted the claim that small businesses create a disproportionate number of jobs, and consider it in the context of the broader economics literature. We then highlight the challenges inherent in evaluating the performance of small businesses with hopes of highlighting the pitfalls that policymakers may face in drawing informed conclusions about regional economic performance.

Then we turn our focus to Ohio. Sections III and IV presents a survey of the performance of its small business and entrepreneurs relative to the rest of the country, and within the state. Finally, we draw on the economic literature to offer explanations for why that might be the case. In Section V, we offer a concluding discussion and our policy recommendations.

¹ In 2015, Ohio’s employment growth was 1.5% compared to 2% nationally

I. Small Business Job Creation: Myth or Reality

When policymakers cite studies finding that small businesses produce the majority of jobs in the U.S., they often are referencing back to David Birch's *The Job Generation Process* (1979). In this highly influential work, Birch explored the variation in job creation rates among firms of differing sizes. His findings suggested that businesses with fewer than 20 employees accounted for more than 66 percent of all new job creation during the early 1970s, leading him to conclude that small businesses grow at a faster rate than large businesses and produce a disproportionate number of jobs in the economy.

Since Birch's findings were published, his conclusions have been repeated over and over by the media and policymakers to the point that it is often accepted at face value. What the media and policymakers leave out is that Birch's claims violate a long standing economic theory. In 1931, French economist Robert Gibrat was studying manufacturers in France, and observed that the ratio of employment by small manufacturers to large manufacturers remained stable over time. For this to be the case, the growth rate of a given firm must be independent of its size. If instead, small businesses systematically grow at a faster rate than large firms, we would expect the ratio of small business employment to large business employment to increase over time. The theory that the growth rate of a firm is unrelated to its size has come to be known as **Gibrat's Law**.

We are then left with an apparently contradiction between Birch and Gibrat. To resolve this conflict, we incorporate an additional dynamic: entrepreneurship.

When a new firm enters a market, it must quickly reach a **minimum efficient scale (MES)** in order to remain competitive. This scale of production is the smallest size necessary to efficiently operate at the lowest average cost. When the MES in a given industry is very high, new firms must grow very rapidly in order to survive. After a firm matures and reaches the industry MES, Gibrat's Law takes hold, and the future growth of a business will be independent of its size.

Table 1. Average Employees per Establishment - 2013

	NAICS	# of Establishments	Employment	Employees /Establishment
Industries with High Minimum Efficiency Scale				
Guided Missile & Space Vehicle Manufacturing	336414	40	41,063	1027
General Medical & Surgical Hospitals	622110	5,404	5,300,436	981
Light Truck and Utility Vehicle Manufacturing	336112	77	62,708	814
Aircraft Manufacturing	336411	293	159,032	543
Industries with Low Minimum Scale				
Independent Artists, Writers, and Performers	711510	23,021	42,873	2
Nail Salons	812113	18,752	61,549	3
Graphic Design Services	541430	15,194	50,425	3
Barber Shops	812111	3,948	14,259	4

Source: Statistics of U.S. Businesses

To provide a concrete example, we might consider what we would expect among new firms in the auto industry in which the average number of employees per establishment is 488. The auto industry in the U.S. is defined by economies of scale and is dominated by only a handful of large companies. When a new firm enters the market, it must grow very rapidly to reach the industry MES and remain competitive. Tesla Motors offers a contemporary example. When Tesla released its first car in 2008 it had 250 employees—a small business as defined by the Small Business Administration². It then began a rapid period of growth, employing more than 14,000 workers by 2015. Tesla's growth trajectory is less a reflection of the advantages of small businesses, than it is an indication of the high MES required to be competitive in the auto industry. We mainly observe fast growing firms in these industries because if they failed to grow, such firms would have high average costs and would not be competitive.

Contrast this example with a barber shop, for which the average number of employees per establishment is 4, which is much lower than the auto industry. When a new barber shop enters the market, it achieves the industry MES with very few employees, and thus we do not observe a rapid growth among barber shop employment. Instead, we are likely to observe that Gibrat's Law holds generally for barber shops, and the growth rate of a given firm is unrelated to its size.

Since young firms are more likely to be small, when observing that small businesses create disproportionately more jobs than large businesses, we might conclude that this is due to size, instead of attributing this growth to new firms achieving MSE. Given the nature of market competition, these new firms in industries with high MES must grow at a disproportionate rate in order to survive.

These dynamics have been empirically tested in the context of Gibrat's Law. Haltiwanger et al. (2013) extends Birch's original analysis to account for firm age, finding that the disproportionate number of jobs created by small businesses can be attributed to new and young firms. When removing the effect of these young firms, they find no relationship between firm size and job creation. Concurrently, Daunfeldt & Elert (2013) test whether Gibrat's Law holds when controlling for industry characteristics. Overall, they find that small firms tend to grow at a faster rate than larger firms, violating Gibrat's Law and confirming Birch's findings. Yet, when breaking the data down to individual sectors, they find cases in which Gibrat's Law does and does not hold. Particularly, their analysis confirms that small businesses tend to grow at a faster rate when industries are characterized by a high MES.

These findings have important policy implications. Birch's conclusion that small businesses create a disproportionate number of jobs would suggest that policies should be adopted that generally support small businesses if job creation was the primary goal. Taking this idea to the extreme, one might even advocate for policies that "break up" large firms. Conversely, Gibrat's Law suggests that small businesses are no more effective at creating jobs than large employers, and thus policies that favor one size of firm will be ineffective.

The efforts to reconcile these two opposing points-of-view suggest that young firms play a more important role in economic growth than small firms generally. Yet, even shifting the focus from small firms to young firms requires a nuanced policy approach. The type of business and the industry in which it operates plays an important role in determining the growth pattern of young firms. Firms in industries with a high MES would likely benefit most from policies aimed at facilitating firm growth. Such policies would focus on accelerating the

² The Small Business Administration defines manufacturers as small if they have fewer than 500 employees. For most of our analysis, we consider small businesses as those having fewer than 50 employees.

process for a firm to reach its MES, including facilitating access to capital, technical assistance, and growth-oriented tax incentives.

Businesses in sectors with a low MES would benefit most from policies aimed at making it easy to start a new business. These small “Mom & Pop” businesses are less likely to experience rapid employment growth or create a disproportionate number of jobs, but they collectively represent a large employment block spread over many small firms. These businesses are far more likely to go into and out of business, generating a constant source of entrepreneurial opportunity. In 2013, the business churn rate for businesses with fewer than 10 employees was more than five times higher than businesses with more than 10 employees.³ Yet, having more start-ups may facilitate a culture of entrepreneurship because it increases the number of people committed to business-friendly policies. Likewise, the more start-ups, the greater likelihood one might be a “gazelle” firm that takes off. Policies aimed at supporting these businesses might include streamlining the process of establishing and registering a business, adding new employees, and paying taxes.

³ US Census Business Dynamics Statistics

II. Measuring Small Business Activity

One of the most challenging aspects of evaluating small business activity arises from various data issues that are rooted in the way that it is measured and how it is defined. Unfortunately, economic theory does not offer a clear definition of small business. As a result, different datasets and analysis utilize varying definitions of what constitutes a small business. This choice of a definition can have a significant effect on the outcomes of our analysis, and must be taken into consideration when drawing conclusions.

When most people imagine a small business, they typically think of a small, owner-managed “Mom & Pop” business. Yet, formal definitions of small businesses can take forms that share little in common with “Mom & Pop” businesses. One of the most commonly used definitions is from the Small Business Administration (SBA). The SBA generally defines a small business as a business with 500 or fewer employees in the manufacturing and mining industries, or a business with average annual receipts of less than \$7.5 million for non-manufacturing industries.

This definition takes into account the fact that small varies significantly by industry, but still has several drawbacks. First, it is somewhat arbitrary, and for many industries relies solely on firm revenue. Since in most cases we are unable to observe firm revenue, it makes it difficult for analysts to use public data to analyze small business activity. Second, the definition does not account for the fact that a small business might vary based on the region or the scale of analysis. For example, in many rural areas, a manufacturer with 450 employees would likely be considered one of the region’s largest employers, although the SBA would classify it as a small business.

In other cases, the federal government adopts a more simplified approach to defining small businesses which more closely aligns with the “Mom & Pop” concept. For example, employers with fewer than 50 employees are not subject to many provisions of the Affordable Care Act. This approach bases the definition on the capacity firm, suggesting that firms of fewer than 50 employees are less likely to have scale or resources to efficiently meet regulations that impose a cost on the business. For our analysis, we will define small businesses as firms with fewer than 50 employees. We do so for simplicity, and to reflect a definition that would be more recognized by the public and policymakers.

The second issue arises from measurement errors, transitory changes in business sizes, and the aggregation of employment dynamics into net job creation measures which can all create misleading depictions of the actual performance of small businesses. For example, consider the example below highlighted by Davis et. al. (1998). Suppose we wanted to know the extent to which small businesses contribute to overall job growth in a given year. We could calculate this measure by comparing the ratio of new employment change among small firms with total net employment change:

$$\frac{SMALL_{2015} - SMALL_{2014}}{TOTAL_{2015} - TOTAL_{2014}}$$

Problems can arise when performing this calculation if firms are re-assigned to a size group each year. In the example from Davis et. al., Firm 1 is considered a small business in Year 1 (using the SBA definition of 500 or fewer employees), and Firms 2 and 3 are large businesses. Between Year 1 and Year 2, Firm 3 grows significantly, while Firms 1 and 2 contract. Since Firm 2 falls below the 500 employee threshold, it would be reassigned and

counted as a small business in Year 2 by the most commonly used data sources on business activity. Thus, a naive calculation would suggest that small business employment grew from 300 to 390 from Year 1 to Year 2, when in fact it fell by 250 employees. In this example, we would conclude that small businesses accounted for 90 percent of job growth, when in reality Firm 3 accounted for all job creation.

Example 1						
				DATA WE OBSERVE		
	Firm 1	Firm 2	Firm 3	Small Firms	Big Firms	All Firms
Year 1 employment	300 ^S	550 ^B	650 ^B	300	1,200	1,500
Year 2 employment	50 ^S	340 ^S	1,210 ^B	390	1,210	1,600
Net Change	-250	-210	560	90	10	100
Small-firm share of net job creation = $(390 - 300)/(1,600 - 1,500) = .9$						
<i>B: Classified as Big Firm; S: Classified as Small Firm</i>						

The extent to which this dynamic can cause issues when evaluating data on small business growth depends on the frequency with which businesses cross over the threshold used to define small and large businesses. Data on gross job flows suggest that there could be significant movement of firms across this threshold. In 2014, Ohio firms added about 76,000 net jobs (BLS), while the sum of quarterly jobs added by growing firms and jobs destroyed by shirking firms throughout the year was more than 1.6 million (Quarterly Workforce Indicators). Even when net job growth is low, some firms add many jobs and others lose many jobs, creating dynamics that can complicate evaluations of small business data.

Fortunately, evaluating the regional performance of young firms is relatively straightforward compared to small business. Firms can only age in one direction, and thus issues about firms moving back-and-forth across category thresholds are less a concern. Complications arise when considering how to handle categorizing establishments of firms with multiple locations and firms following a merger or acquisition. Data sources may handle these issues differently and they should be taken into consideration when evaluating data on the economic activity of young firms.

To address these data issues, we draw much of our data from the Quarterly Workforce Indicators⁴. This publically available data allows for the analysis of business activity based on firm size and firm age at quarterly intervals at the state, metro, and county levels. Firms are assigned a size classification during the first quarter, and maintain that classification for the rest of the year. This allows us to evaluate the performance of businesses of differing size and ages within a single year. Although this does not allow us to compare across years for small businesses, it offers a valuable source for evaluating the regional dynamics of small and new businesses.

⁴ <http://qwiexplorer.ces.census.gov>

Small & Young Businesses in Ohio

We now turn to Ohio to explore the dynamics of small businesses in the state. Using the most recent data available from Q1 of 2015 provided by the Quarterly Workforce Indicators, small businesses with fewer than 50 employees account for 25 percent of total employment in Ohio, while large firms with more than 500 employees account for more than 50 percent of total employment.

Table 3. Share of Total Employment – Ohio Q1 2015 – All Industries

	Share of Total Employment	Average Monthly Earnings
0 - 50 Employees	25.05%	\$2,982
51 -500 Employees	22.51%	\$3,671
500+ Employees	52.44%	\$4,814

Source: Quarterly Workforce Indicators; Includes only private employment.

Table 4 provides a breakdown of the share of employment by firm size for each industry. Small businesses comprise the largest share of employment in agriculture, construction, and other services. While these industries have a large number of self-employed workers and independent contractors resulting in a disproportionate share of small business employment in the sectors, they comprise a smaller share of the total employment. When considering which industries account for the largest share of small business employment, a different set of dominant industries emerge (Table 5). Nearly 40 percent of small business jobs are in the Accommodation and Food Services, Health Care and Social Assistance, and Manufacturing Sectors, with Accommodation and Food Services accounting for nearly 20 percent of small business job creation.

Table 4. Sector Employment by Firm Size - Ohio Q1 2015

	0 - 50 Employees	50-249 Employees	250-499 Employees	500+ Employees
Agriculture, Forestry, Fishing and Hunting	62.05%	13.89%	11.30%	12.76%
Other Services (except Public Administration)	61.48%	16.56%	2.97%	18.99%
Construction	59.09%	20.98%	5.75%	14.19%
Real Estate and Rental and Leasing	43.75%	18.46%	6.52%	31.28%
Professional, Scientific, and Technical Services	38.66%	17.60%	6.63%	37.11%
Accommodation and Food Services	36.09%	18.36%	6.50%	39.05%
Arts, Entertainment, and Recreation	33.91%	24.35%	9.36%	32.37%
Wholesale Trade	28.94%	22.09%	7.93%	41.03%
Mining, Quarrying, and Oil and Gas Extraction	28.94%	19.63%	9.97%	41.46%
Retail Trade	19.98%	9.61%	2.84%	67.58%
Health Care and Social Assistance	19.47%	18.10%	7.15%	55.28%
Transportation and Warehousing	19.34%	12.21%	4.08%	64.36%
Admin & Support & Waste Management	18.60%	14.11%	6.57%	60.72%
Manufacturing	16.97%	19.48%	8.24%	55.32%
Finance and Insurance	16.38%	9.14%	3.20%	71.29%
Educational Services	16.13%	35.43%	6.78%	41.66%
Information	13.21%	10.79%	2.76%	73.24%
Utilities	9.31%	4.84%	2.64%	83.22%
Management of Companies and Enterprises	2.13%	5.88%	4.82%	87.17%
All Industries	25.05%	22.51%	6.05%	52.44%

Source: Quarterly Workforce Indicators; Includes only private employment.
Sector Employment by Firm Size: Firm Size Emp (Sector)/Total Emp (Sector)

Table 5. Sector Share of Small Business Employment – Ohio Q1 2015

	Share of Small Business Employment
Accommodation and Food Services	14.28%
Health Care and Social Assistance	13.39%
Manufacturing	10.55%
Retail Trade	9.92%
Construction	9.55%

Source: Quarterly Workforce Indicators; Includes only private employment.
Sector Share of Small Biz Emp: Sector Emp (<50 Emp)/Total Emp (<50 Emp)

Table 6 compares average monthly wages across firm sizes. Workers in small businesses earn nearly \$1,000 less per month than those at large firms. While the wage gap is striking, there is significant variation of wages across industries. Table 6 presents a comparison of average monthly wages for workers at firms with less than 50 and workers at firms with more than 50 employees. Small business workers receive the highest wages in the

Management of Companies and Enterprises, Finance and Insurance, and Utilities. Even among the top earning industries, small business workers earn 30 to 40 percent less than workers at large firms. The notable exception is small business workers in the Management of Companies and Enterprises, which earn almost 40 percent more than their large firm counterparts.⁵

	Avg Monthly Wages < 50 Emp	Avg Monthly Wages > 50 Emp	Ratio of < 50 / >50
Management of Companies & Enterprises	\$8,985	\$6,527	138%
Finance and Insurance	\$4,827	\$6,771	71%
Utilities	\$4,611	\$7,732	60%
Professional, Scientific, and Technical Services	\$4,607	\$6,540	70%
Wholesale Trade	\$4,384	\$5,773	76%
Mining, Quarrying, and Oil and Gas Extraction	\$4,322	\$6,555	66%
Information	\$3,901	\$5,565	70%
Construction	\$3,567	\$5,244	68%
Manufacturing	\$3,378	\$4,752	71%
Real Estate and Rental and Leasing	\$3,210	\$5,103	63%
Transportation and Warehousing	\$3,074	\$3,863	80%
Health Care and Social Assistance	\$3,065	\$3,184	96%
Admin & Support & Waste Management	\$2,747	\$2,954	93%
Other Services	\$2,411	\$2,962	81%
Agriculture, Forestry, Fishing and Hunting	\$2,331	\$3,449	68%
Retail Trade	\$2,298	\$2,767	83%
Educational Services	\$1,933	\$3,012	64%
Arts, Entertainment, and Recreation	\$1,482	\$2,987	50%
Accommodation and Food Services	\$1,168	\$1,361	86%
All Industries	\$2,982	\$3,941	76%

Source: Quarterly Workforce Indicators; Includes only private employment.

Just as small business employment varies across industries, it also varies across demographics. Table 7 shows that black workers in Ohio are 50 percent less likely to work for a small business than white workers. Average monthly earnings for black small business workers lag white workers by more than \$1,000 per month, a wage gap persistent across firm sizes. Asian workers are most likely to be employed in a small business, and enjoy a wage premium over white workers across all firm sizes. Among small businesses, black workers are disproportionately employed in the Health and Social Assistance sector, while Asians are disproportionately employed in the Accommodation and Food Services sector.

⁵ The phenomenon of large firms paying more than small firms has long been recognized with explanations including large firms employ workers with more skills and experience, while other explanations revolve around workers find work at large firms being distasteful due to their bureaucratic nature, meaning that large firms need to pay more to attract workers.

Table 7. Small Business Employment by Demographic Group – Ohio Q1 2015

	Share of Employment			Avg. Monthly Earning		
	0-50 Employees	50-499 Employees	500+ Employees	0-50 Employees	50-499 Employees	500+ Employees
White	26%	22%	51%	\$3,055	\$3,863	\$5,067
Black	14%	24%	62%	\$1,896	\$2,188	\$2,877
Asian	27%	17%	56%	\$3,897	\$5,080	\$7,354

Source: Quarterly Workforce Indicators

Much research has been devoted to understanding the gaps in entrepreneurship and small business success between whites and blacks (See Lofstrom & Banes, 2013 for an overview). Several theories for the gap have emerged focusing on barriers to entry for black entrepreneurs, including disparities in owner endowments of financial and social capital and differences in prior work experience in a family member's business (Fairlie and Robb, 2007). Yet, even when controlling for the education and personal wealth of black entrepreneurs, gaps in black entrepreneurship persist, pointing to the possible presence of discriminatory forces such as access to the small-business credit market (Blanchflower et al, 2003; Lofstrom & Bates, 2013).

Table 8 highlights the share of employment by age of firm for each sector. The Mining, Quarrying, and Oil and Gas Extraction sector has the highest share of employment in young firms, accounting for nearly 20 percent of employment in the sector. Most sectors in Ohio tend to be dominated by older firms, which on average account for 85 percent of employment.

Table 8. Sector Employment by Firm Age - Ohio Q1 2015

	0-5 Years	6-10 Years	11+ Years
Mining, Quarrying, and Oil and Gas Extraction	19.3%	8.0%	72.6%
Accommodation and Food Services	18.1%	12.6%	69.2%
Real Estate and Rental and Leasing	15.1%	9.9%	75.0%
Agriculture, Forestry, Fishing and Hunting	14.4%	16.4%	69.1%
Arts, Entertainment, and Recreation	14.4%	8.3%	77.4%
Other Services (except Public Administration)	12.6%	9.4%	78.0%
Admin & Support & Waste Management	11.9%	11.2%	76.9%
Construction	11.3%	9.5%	79.2%
Professional, Scientific, and Technical Services	10.7%	9.6%	79.7%
Health Care and Social Assistance	9.2%	8.1%	82.7%
Transportation and Warehousing	6.9%	6.2%	86.8%
Information	6.8%	4.5%	88.8%
Wholesale Trade	6.0%	6.5%	87.5%
Educational Services	5.8%	8.4%	85.8%
Retail Trade	5.6%	5.2%	89.2%
Manufacturing	3.5%	3.8%	92.7%
Finance and Insurance	3.5%	3.7%	92.8%
Management of Companies and Enterprises	2.4%	1.4%	96.2%
Utilities	0.5%	0.4%	99.0%
All Industries	8.5%	7.3%	84.1%

Source: Quarterly Workforce Indicators

Sector Employment by Firm Age: Firm Age Emp (Sector)/Total Emp (Sector)

Table 9. Sector Share of Small Business Employment – Ohio Q1 2015

	Share of Young Firm Employment
Accommodation and Food Services	21%
Finance and Insurance	18%
Information	10%
Retail Trade	8%
Arts, Entertainment, and Recreation	7%

Source: Quarterly Workforce Indicators

Sector Share of Young Firm Emp: Sector Emp (< 5 years)/Total Emp (< 5 years)

Yet, most of the entrepreneurial opportunity in Ohio resides in the Accommodation and Food Services sector (Table 9). At the beginning of 2015, more than 20 percent of new firm employment was in the Accommodation and Food Services sector, followed by Finance and Insurance which accounted for 18 percent of young firm employment.

When examining employment among young firms by demographic groups, a very different story emerges than when looking at employment based on firm size. Table 10 shows that black workers are actually more likely to

be involved in entrepreneurial activity than white workers, with a higher share of black workers being employed in young firms than white workers. Yet, as we noted previously, black workers are much less likely to be employed in small businesses than white workers. This raises a puzzling question: if black workers are more likely than white workers to work for young firms, why are black workers so much less likely to be employed in small businesses?

Table 10. Young Firm Employment by Demographic Group – Ohio Q1 2015

	Share of Employment			Avg. Monthly Earning		
	0-5 Years	6-10 Years	11+ Years	0-5 Years	6-10 Years	11+ Years
White	8%	7%	85%	\$2,885	\$3,130	\$4,436
Black	10%	8%	83%	\$1,751	\$1,928	\$2,704
Asian	11%	10%	79%	\$3,057	\$3,941	\$6,529

Source: Quarterly Workforce Indicators

Unfortunately, the available data does not provide a clear answer, but it does reflect findings in the economics literature that black entrepreneurs have lower success rates than white entrepreneurs. Fairlie and Robb (2007) find that black owned businesses tend to have lower sales, fewer employees and smaller payrolls, lower profits, and higher closure rates. If we consider that only 14 percent of black workers are employed in small businesses, and 10 percent of black workers are employed in firms five years and younger, and given that young firms are also likely to be small, we can conclude that the majority of small business employment among black workers are in firms five years and younger. This suggests that small businesses that employ black workers are far more likely to go out of business in less than five years than small businesses employing white or Asian workers.

If small businesses and entrepreneurs are the source of dynamism and growth in Ohio's economy, then the process of job creation and destruction among these firms sheds light on the vitality of not just these businesses, but on the state economy as a whole. To explore this topic, we utilize average quarterly data from the Quarterly Workforce Indicators. In this dataset, businesses are assigned a size (age) category based on the number of employees (age) in March. It remains in the same category for the remainder of the year, allowing us to compare growth across firm size (age) within a given year while avoiding the measurement issues discussed above.

Table 11 compares average quarterly job creation and destruction across firm sizes and firm ages in 2014. The data suggests that small businesses do in fact produce a disproportionate number of jobs. In 2014, small businesses with fewer than 50 employees comprised just 26 percent of total employment, but accounted for 46 percent of total *gross* job creation, and 55 percent of *net* new job creation. Likewise, large firms over 500 employees employed 52 percent of total employment but accounted for only 21 percent of net job creation. While Ohio small businesses accounted for a lower share of total employment compared to the U.S. as a whole, the share of net jobs created by small businesses significantly exceeded the national average of 46 percent.

		Share of Total Emp	Job Creation	Job Destruction	Share of Job Creation	Share of Job Destruction	Share of Net Job Creation
Ohio	0 - 50 Employees	26%	94,372	74,742	46%	44%	55%
	50-499 Employees	22%	42,212	33,608	21%	20%	24%
	500+ Employees	52%	68,877	61,301	33%	36%	21%
	0 - 5 Years	8%	44,186	27,577	22%	16%	46%
	6-10 Years	7%	21,569	18,664	10%	11%	8%
	11+ Years	85%	1,399,23	1,235,80	68%	73%	46%
U.S.	0 - 50 Employees	29%	2,948,786	2,321,846	47%	46%	50%
	50-250 Employees	21%	1,199,202	961,591	19%	19%	19%
	500+ Employees	50%	2,117,909	1,717,719	34%	34%	32%
	0 - 5 Years	11%	1,598,568	1,011,447	25%	20%	46%
	6-10 Years	9%	730,081	620,794	12%	12%	9%
	11+ Years	80%	3,947,040	3,376,028	63%	67%	45%

Source: Quarterly Workforce Indicators; 2014 is the most recent year in which data is available for Ohio and the U.S.. Job Creation and Job Destruction are the average quarterly job creation and job destruction in 2014.

As previous research has found, young firms likely account for a significant share of the disproportionate job creation attributed to small business. While firms five years old and younger accounted for only 8 percent of total employment in Ohio in 2013, they created 21 percent of new jobs and 46 percent of net new jobs, which was equal to the national average.

While the data in Table 11 provides some positive signs, suggesting that small businesses are creating disproportionately more jobs than the national average, looking at the shares of job creation, job destruction, and net job creation alone can be misleading. For example, a high share of net job creation among small firms might reflect strength in the small business sector, but it could also reflect even slower growth among larger firms. A different perspective on the data suggests that while net job creation among small businesses and new business in Ohio are in line with the nation as a whole, these firms are significantly less dynamic. Table 12 provides a comparison between actual job creation, job destruction, and net job creation in 2014, and the levels of each metric that would have been expected had Ohio firms created and destroyed jobs at the same rate as the national average. The data shows that Ohio small businesses and new businesses were less dynamic than the U.S. average, creating and destroying fewer jobs than would be expected.⁶ If the Ohio small business

⁶ Firms across the size and age spectrum were less dynamic than the US as a whole in terms of jobs created and destroyed.

economy has been as dynamic as small businesses nationally, more than 7,500 more jobs would have been created each quarter throughout the year in 2014, and more than 5,500 more jobs would have been eliminated, but the additional *net* job creation of 2,053 jobs per quarter would have resulted in increasing the state's job creation from about 77,000 to about 85,000 (using BLS.gov Current Employment Statistics). Indeed, keep in mind this shortcoming is cumulative and suggests 80,000 more jobs over the course of a decade. The fact that the difference in net job creation is small helps to hide this lack of vitality, but raises questions about the overall health of the Ohio economy as the dynamic churning of jobs and businesses represents the redeployment of capital from less productive to more productive economic activities. That is creative destruction has value in moving resources from less productive realms to more productive endeavors. Likewise, the more start-ups, the larger chance one will be widely successful.

Table 12. Actual vs Projected Quarterly Job Creation & Destruction - 2014

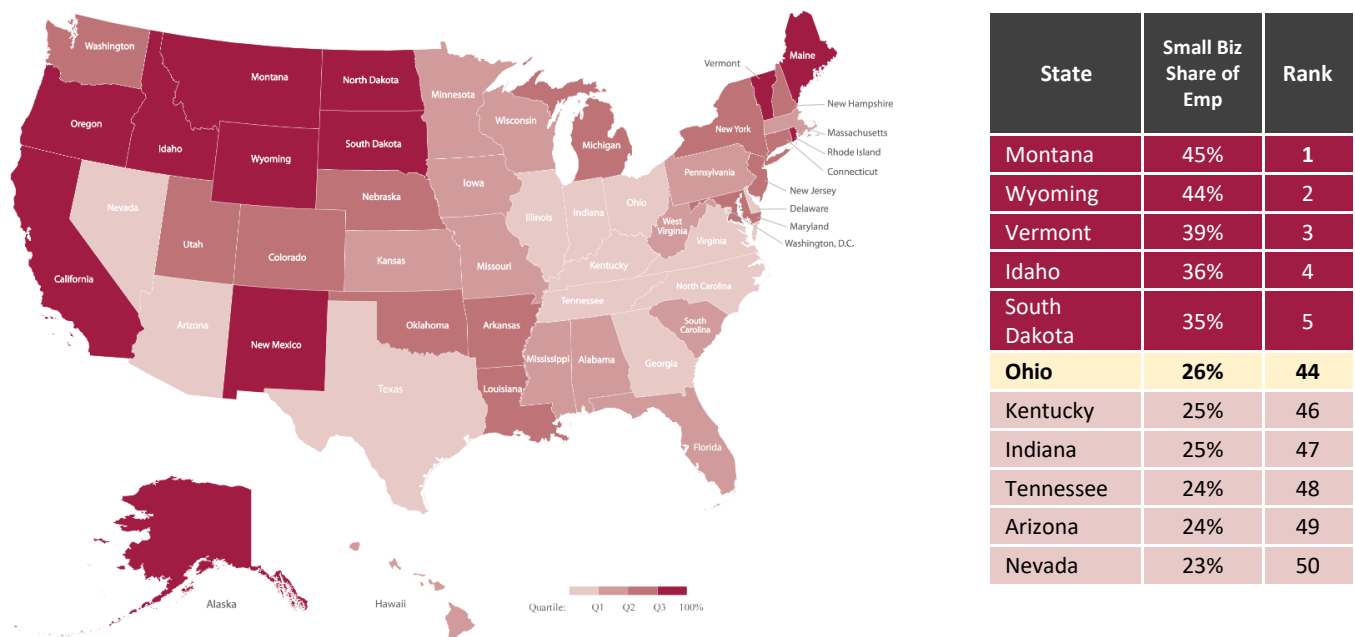
	Job Creation			Job Destruction			Net Job Creation		
	<i>Actual</i>	<i>Projected</i>	Difference	<i>Actual</i>	<i>Projected</i>	Difference	<i>Actual</i>	<i>Projected</i>	Difference
0 - 50 Employees	94,372	101,988	(7,616)	74,742	80,304	5,562	19,630	21,683	(2,053)
0 - 5 Years	44,186	47,820	(3,634)	27,577	30,257	2,680	16,609	17,563	(954)

Source: Quarterly Workforce Indicators; 2014 is the most recent year in which data is available for Ohio and the U.S.; Projected values are calculated multiplying the average the quarterly U.S. job creation and job destruction rates by average Ohio employment in 2014.

III. Ohio's Small Business Economy in the National Context

The lack of dynamism of Ohio's small business and start-up economies are reflected in Ohio's rank compared to other states. The state is in the bottom tier of states in terms of both small business employment and start-up employment. Figure 1 shows the variation in small business employment across U.S. states. Ohio ranked 44th nationally in small business employment.

Figure 1. Share of Small Business Employment, 2014

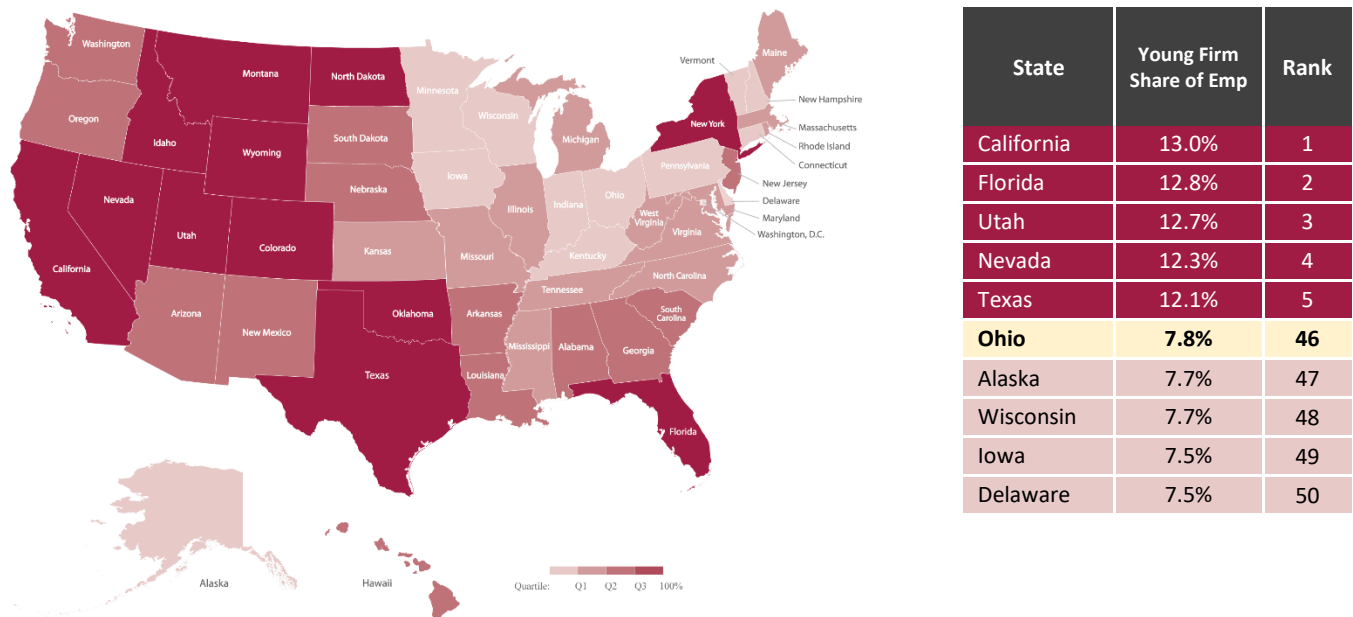


Source: Quarterly Workforce Indicators; States shaded based on quartile ranking.

Nationally, small business employment is highest in the rural Plains and Mountain States, and the West Coast, while small business employment is lowest in the Great Lakes and Appalachian regions. With just 26 percent of employment in small businesses, Ohio ranks 44th nationally. A similar pattern emerges when considering the employment share of young firms. Again, Ohio, the Rust Belt, and central Appalachia rank among the states with

the lowest shares of employment by young firms. In 2014, Ohio ranked 46th nationally (7.8%) for the share of employment by firms five years old or younger (Figure 2).⁷

Figure 2. Share of Employment at Firms < 5 Years Old, 2014



Source: Quarterly Workforce Indicators; States shaded based on quartile ranking.

There are several factors that can help to explain the variation of small business and start-up activity across regions. First, population growth has long been identified as being closely associated with entrepreneurship (Armington & Acs, 2002). Population growth has both a supply and demand effect that drives business start-ups. As the population of a region grows, so does the population of potential entrepreneurs, increasing the likelihood of new business formation. Perhaps most important, growing populations increase the demand for products and services, creating new market opportunities for entrepreneurs.

A second source of variation in entrepreneurial activity across regions is the stock of human capital. Entrepreneurship requires assessing information about a market and applying new ideas to service this market to allow new businesses to gain a competitive advantage over existing businesses. Economists consider both the ability to assess information and the ability to discover and apply new ideas as aspects of human capital. Research exploring the relationship between human capital and entrepreneurship typically focuses on the share of the population with a college degree in a region. While formal education is not a prerequisite for entrepreneurship, those who have the skills required to successfully start a business are more likely to attend college than not, while the college experience can provide opportunities for potential entrepreneurs to obtain

⁷ Note that some of the high business share in smaller rural states is somewhat mechanical in that in a small town in (say) Wyoming, the firm that does heating and cooling will employ just a few workers compared to a large city such as Cincinnati or Cleveland, in which the same firm could employ hundreds.

ideas and knowledge that can translate into new opportunities. Acs & Armington (2004) find that higher levels of educational attainment increase the rate of new firm formation for sectors in which new business founders typically have a college degree, but do not find an association in sectors that do not require a college degree. Others have focused more specifically on the stock of “creative” workers in a region, finding that this group is associated with higher rates of entrepreneurship in both urban (Lee et al., 2004) and rural regions (McGranahan et al., 2001).

Finally, the share of small business and new firm employment are also influenced by the current and historic industrial structure of a region. Many of the states with the highest rates of small business activity and young firm employment tend to be in very rural areas of the Great Plains and Mountain West. In small markets, large firms would have too much capacity, regardless of MES, meaning small firms would have lower costs in these markets. The sparse population in these areas are also less likely to support the employment demands of large firms, resulting in a much larger share of small business employment. Indeed, Li et al. (forthcoming) find that the fastest growing firms (whether young or old) can be in any industry or in any region, including rural and urban. One implication is that all regions, if they set up an inviting environment, can potentially benefit from these firms and that targeting specific industries is unnecessary and potentially discourages those who would have succeeded.

Small business and young firm employment is lowest in the Great Lakes, Appalachia, and the South, regions that have historically relied on manufacturing and natural resource sectors. On one hand, it is possible that firms in sectors with high economies of scale can crowd out entrepreneurs. Betz et al. (2015) find that entrepreneurs are crowded out of regions historically experiencing coal booms, resulting in a lower growth rate during a bust period.

There is also evidence that the industrial past of a region can profoundly affect the contemporaneous economic environment. Glaser et al. (2013) find that regions that had a high share of employment in large-scale industries like mining or manufacturing in the 1960s experienced lower rates of entrepreneurship through the 1980s and 1990s, even after accounting for regional differences in factors like population and economic growth over time. There are several reasons for this link between past industrial structure and present day entrepreneurial activity. First, there is some evidence that suggests human capital related to entrepreneurship is intergenerational. Experience working in family-owned businesses has been identified as a critical factor explaining the variation in the success of entrepreneurs (Fairlie and Robb, 2007). If during one period a region has high concentrations of large employers that crowds out small businesses and reduces the population of potential entrepreneurs, then following Fairlie and Robb, there will be fewer successful entrepreneurs in the next generation, all else equal.

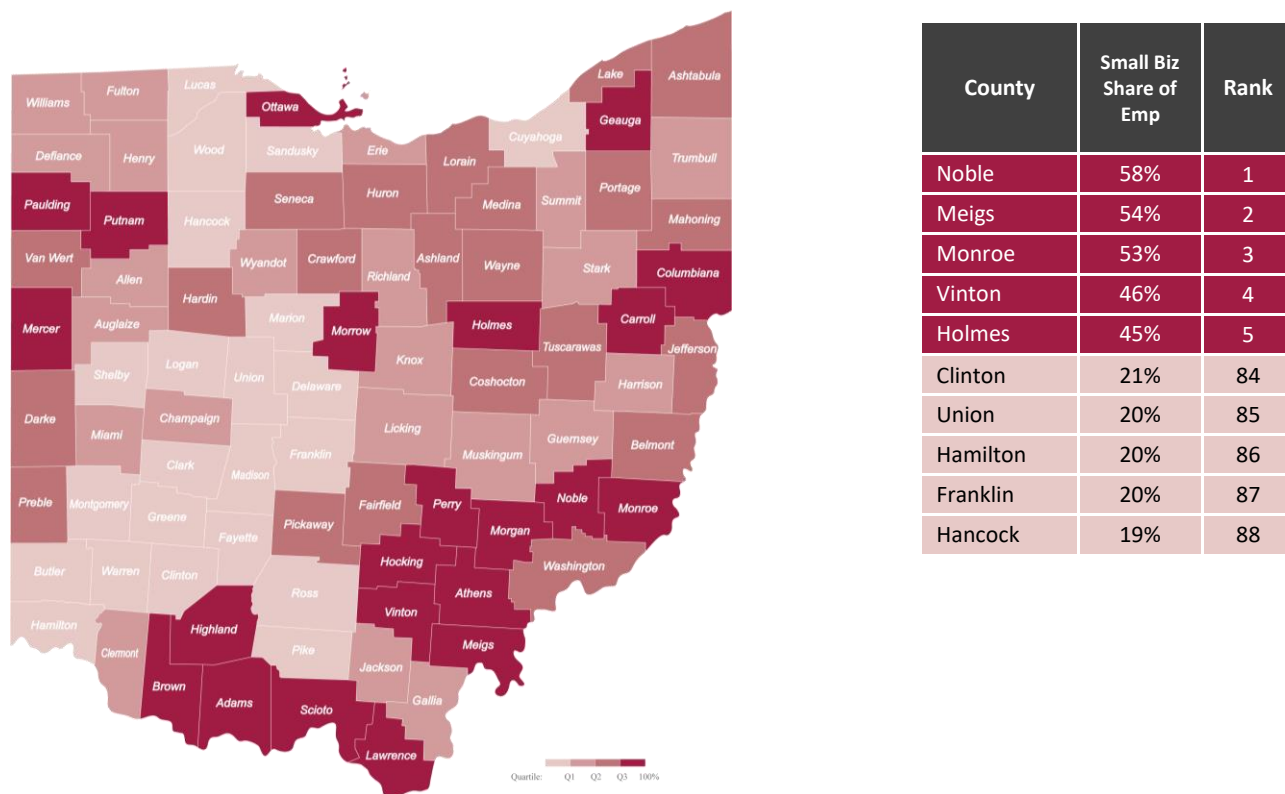
A second factor is the relationship between present day economic development policy and legacy industries. When large, historic industries begin to decline, there is often increased political pressure on local, state, and federal governments to intervene through subsidies to prop up existing employment or attract new large-scale employers through “smoke-stack chasing” to replace declining firms. Such policies are common place, such as the recent Power+ Act which proposed \$2 billion in subsidies to coal companies even though employment in the coal industry has been steadily declining for decades (Partridge et al., 2016). By artificially propping up large, legacy sectors, these policies can have an unintended effect of further discouraging entrepreneurs in “sunrise” industries, resulting in lower rates of entrepreneurship in the near term, and potentially slowing a region’s long-term economic growth.

IV. Small Business Economy in Ohio's Counties

We now turn to an examination of the performance of small businesses and start-ups in Ohio counties. Figure 3 shows the quartile rankings of Ohio's counties in terms of the share of small business employment in 2014. A pattern immediately emerges in which the counties with the highest share of small business employment tend to be rural, especially in Appalachian Ohio. Conversely, Ohio's urban counties (Franklin, Hamilton, and Cuyahoga) rank among the counties with the lowest share of small business employment, with shares half that of the highest ranking counties. Notably, Clinton and Union counties are both smaller counties with low levels of small business employment. Both counties though have relied on large employers, DHL in Clinton County's case (which no longer operates) and Honda in Union County's case. The low level of small business activity in these counties likely captures the crowding-out effect of these large employers and would not bode well if these counties suffer economic declines.

As has been noted above, we would expect to see a higher share of small business employment in rural areas. As a result, small business and entrepreneurs play a significant role in driving rural economic development, especially lagging regions like in Appalachia (McGranahan & Wojan, 2011; Stephens et al., 2013).

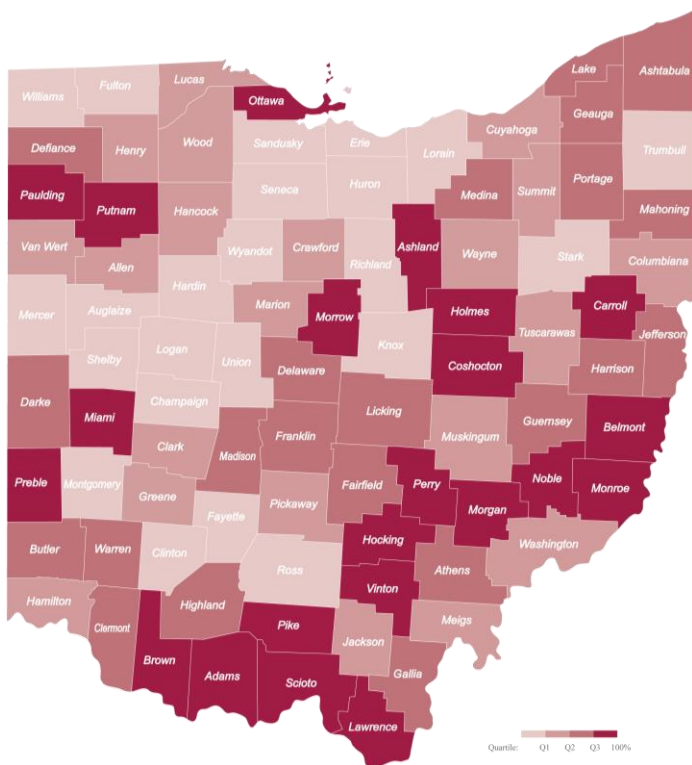
Figure 3. County Shares of Small Business Employment, 2014



Source: Quarterly Workforce Indicators; Counties shaded based on quartile ranking.

Similar patterns emerge when considering the share of new firm employment. The counties with the highest share of young firm employment are in the rural, Appalachian region of southeast Ohio. While urban core counties rank among the counties with the lowest levels of small business employment, they rank relatively higher when considering the share of employment at young firms. For example, Franklin, Hamilton, and Cuyahoga counties rank 87th, 86th, and 79th in terms of small business employment, but rank 35th, 49th, and 56th respectively in terms of the share of employment at firms five years old and younger. One reason for this difference is that urban areas are more conducive to young firms that grow quickly into larger firms because of their larger markets, while new firms in rural areas may remain small.

Figure 4. County Shares of Employment at Firms < 5 Years Old, 2014



County	Small Biz Share of Emp	Rank
Pike	33.2%	1
Morgan	16.3%	2
Vinton	16.0%	3
Noble	14.7%	4
Hocking	14.5%	5
Wyandot	3.0%	84
Hardin	2.9%	85
Logan	2.3%	86
Clinton	2.2%	87
Shelby	2.0%	88

Source: Quarterly Workforce Indicators; Counties shaded based on quartile ranking.

Traditionally, federal policies that support small businesses and entrepreneurs have been delivered by the Small Business Administration (SBA), and in rural areas, the U.S. Department of Agriculture. These policies come in the form of technical assistance or subsidized loans. For example, the SBA in partnership with the Ohio Development Services Agency operates 28 Small Business Development Centers in Ohio. These centers provide no-cost technical assistance to entrepreneurs and small businesses such as business plan development, training, and support in accessing SBA and USDA loan programs.

Traditional state and federal small business and entrepreneurial policies and support are often complemented by local/regional efforts to stimulate the small businesses and start-ups. These regional efforts have taken diverse forms, often reflecting their unique features. We highlight a few examples:

ACEnet – Based in Athens and serving Appalachian Ohio – ACEnet is a non-profit organization founded in 1985 with a focus on helping low-income people start employee-owned businesses. ACEnet adopted a strategy based on a model of small business development with origins in northern Italy. This strategy is based on business network formation, helping manufacturers and entrepreneurs organize around emerging opportunities by sharing resources and supporting local sourcing. Today, ACEnet operates a small business incubator, and the Food Ventures Center, a sector-specific incubator focused on serving the needs of companies producing specialty food products.

ACEnet provides an excellent example of a capacity-building approach to small business development. By providing essential services, expertise and market information—in areas such as marketing, product placement, production and kitchen incubation—ACEnet directly supports the capacity of individual entrepreneurs. By linking these new and small businesses into a network, they facilitate the sharing of information and expertise between experienced and new entrepreneurs, while simultaneously matching the needs of one business with the products of another, increasing the region’s capacity to support new entrepreneurs.

JumpStart – Based in Cleveland and serving Northeast Ohio – Jumpstart is a non-profit organization founded in 2003 by Case Western Reserve University and NorTech with a mission of promoting entrepreneurship and innovation in the region. JumpStart utilizes a concept of “venture development” which combines capital investment with intensive technical training for entrepreneurs. As part of its “venture development model, JumpStart maintains four venture capital funds that make equity investments in high-potential start-up and scale-up companies. JumpStart then provides intensive business development support services to its portfolio companies, and matches them with other venture capital funds in Northeast Ohio to provide additional capital and support. As JumpStart has grown, its services for both its portfolio companies and non-portfolio companies have expanded, including mentoring, scale-up services, a business loan program, and talent recruiting/placement.

Columbus Idea Foundry – Based in Columbus, serves Central Ohio – The Columbus Idea Foundry (CIF) is 65,000 square foot makerspace. Unlike the previous two examples, the CIF has adopted a for-profit model for delivering support services to small businesses and entrepreneurs. CIF provides access to tools, equipment, and training to members who—like gym members—pay a monthly fee to access CIF’s resources. As a flexible, multi-purpose space, CIF serves members of all skills levels, from hobbyist to entrepreneurs who need access to tools and equipment that are otherwise inaccessible. CIF plays a few unique roles in the ecosystem of manufacturing entrepreneurship. First, it provides the tools and equipment needed to develop and prototype new products, serving as a shared, low-cost R&D facility. Second, it promotes the exchange of ideas and knowledge between members who use the space, providing an environment conducive to innovation. Finally, by sharing the cost of equipment, tools, and space, CIF helps to lower start-up and overhead costs. After it completes its current expansion, CIF will also provide co-working office space for business offering wrap-around business development services, such as marketing firms, intellectual property lawyers, and venture capital firms. CIF provides an example of an organic model of entrepreneurial development. As opposed to offering intensive business development programs or direct access to capital, it focuses on creating an environment conducive to innovation and lowers entry costs for entrepreneurs.

The Brandery – Based in Cincinnati and serving firms worldwide – The Brandery is a seed stage start-up accelerator which leverages the Cincinnati region’s expertise in branding, marketing and design to support the growth of consumer focused product companies. Each year, the Brandery runs a four month accelerator program for 10 to 12 companies that can apply from anywhere. Each start-up annually receives \$50,000 dollars

of free office space in the Brandery's Cincinnati headquarters, support from a network of mentors, and they are paired with a creative agency that helps the start-up gain access to Cincinnati's large consumer brand companies, including Proctor & Gamble, Dunhumby, and Kroger. In exchange, the Brandery receives a 6 percent equity stake in the company.

One unique feature that sets the Brandery apart is that it places much more focus on attracting entrepreneurs to greater Cincinnati, receiving applications from 40 states and 40 countries. The selected start-ups are required to operate in Cincinnati for the entire four month accelerator, and the Brandery seeks to build a strong business network for its participants with potential investors and customers in greater Cincinnati. As a result, most of the companies that participate in the program remain in Cincinnati, even though that is not a requirement of the four month program.

V. Conclusion & Policy Discussion

Accounting for a quarter of all employment, small businesses play a critical role in Ohio's economy. Similarly, entrepreneurs that start new business create a disproportionate share of all new jobs in the state. Yet, given the important roles of these businesses, Ohio ranks among the weakest performing states for small businesses and start-ups. In terms of small businesses, if Ohio had the same intensity of small businesses growth as the national average, the state would have added about 8,000 more jobs in 2014, implying about 80,000 jobs over a decade.

For Ohio to develop a more vibrant small business and start-up economy, it must align its policy with its rhetoric around the importance of small businesses. There are some positive signs that this is happening. In 2016, small business owners received a 75 percent tax cut on their business income, leveling the field somewhat with larger firms that tend to benefit from the state's economic development incentive programs. While there may be some concerns with the 75 percent tax cut, it has the key strengths of focusing on small businesses and it does not discriminate across sectors. This is an important feature of the policy, as we have already pointed out that fast-growing firms can emerge in any sector and in any place. The state has also taken steps to shift the Third Frontier program to focus more strategically on start-ups and early-stage companies with growth potential. Likewise, some of the regional efforts we highlighted bring added expertise that emerging entrepreneurs may not have.

These steps are important, but they do not address the systemic issues that we have highlighted in this report that reduce the level of Ohio's small business activity and entrepreneurship. Drawing on this literature, we conclude with three policy approaches.

Expand Entrepreneurial Opportunities

A growing body of research is suggesting that entrepreneurial skills and experience is passed across generations. Fairlie and Robb (2007) find that entrepreneurs who grow up working in a family-owned business are more likely to be successful.

Ohio's low levels of small business activity and entrepreneurship means that young Ohioans are less likely to gain experience working in a small business, and consequently, are less likely to develop the general or specific entrepreneurial human capital required to be a successful entrepreneur. Thus, in order to increase the future level of entrepreneurship, we should expand the opportunity for young people to work and learn in small businesses to develop business human capital.

One approach to expanding opportunities for young people is to incentivize small businesses to develop apprenticeship programs. Apprenticeship programs typically combine aspects of working with learning, and are usually associated with a community college or joint vocational school. Six states offer tax credits to firms that provide apprenticeship opportunities, ranging from \$100 (Connecticut) to \$4,800 (Rhode Island), while two states provide tuition assistance to the apprentices. To increase future rates of entrepreneurship, Ohio could adopt a similar apprenticeship program specifically targeted at small businesses and start-ups.

Ohio could also incentivize small businesses to hire young people by expanding and leveraging the Temporary Assistance for Needy Families (TANF) Summer Youth Employment Program which seeks to increase employment opportunities for young people in families that earn less than 200 percent of the poverty line. This program incentivizes businesses to hire eligible youth by reimbursing employers for up to \$10 per hour in wages. One of the great strengths of the program is that it is size and industry neutral, making it easily accessible for small businesses.

It is encouraging that funding for this program is rising. In 2016, \$45 million has been allocated for the program, up from \$35 million in 2015. Yet, the program lacks the structure required to fully leverage it as an economic development tool and as an opportunity to expand opportunities for young people to gain entrepreneurship experience. Currently, there is very little reporting from the state on the characteristics of the young people or businesses using the program. While it is possible that many small businesses and entrepreneurs are using the program to hire young workers, this could be by coincidence instead of by design. The state could easily leverage the program by providing information about the types of businesses utilizing the program in each county. This would help local economic development leaders and public officials evaluate the extent to which the program supports local economic development goals. Further, the state could encourage the development of local wrap-around entrepreneurship training programs that provide additional training and support to young people working with small businesses.

A second area of focus for expanding opportunity is working to increase the rate of small business employment among black people. As we noted in Table 7, the rate of black employment by small businesses is 10 percentage points lower than white employment, and black workers in small businesses earn more than \$1,000 a month less than their white counterparts. To develop effective policy, we must have a clear understanding of the factors which have created such a large gap in small business employment between blacks and whites. This is a topic worthy of more research and attention by academics and government researchers in the state.

At the most basic level, the state should focus on providing an environment that encourages black entrepreneurs and supports their success. One way to provide an environment conducive to entrepreneurship is to ensure that black entrepreneurs have equal access to credit. Disparities in the median level of net worth between whites and blacks likely has a large effect on the likelihood of starting a business. In 2013, the median household wealth of a white family in the U.S. was \$134,008 versus \$11,184 for a black family (Emmons & Noeth, 2015). Without household wealth, black entrepreneurs have far less personal capital to draw from to start a business, and most depend entirely on credit markets. Yet, evidence continues to emerge which points to the possibility that blacks face discrimination when seeking small business credit (Blanchflower et al, 2003; Blanchard et al., 2008; Henderson et al., 2015).

Ohio currently offers two programs targeting minority business owners, the Minority Business Direct Loan Program and the Ohio Capital Access Loan Program. Yet, a 2009 report on Ohio's economic development program noted that utilization of these programs was very low. Since 2009, the employment rate of black

workers in small businesses has only increased by half a percent. This evidence suggests that the state, in partnership with lenders, should redouble its efforts to offer meaningful programs to support black entrepreneurs and small business owners, and ensure that black entrepreneurs receive equal treatment in the credit market.

Consider the Tradeoffs of Ohio's Economic Development Incentive System

Like many states, Ohio relies heavily on tax incentives to attract new companies to the state. While these incentives are often sold as a necessary, although not necessarily very effective, means of promoting job growth, there are many unintended consequences. Most tax incentive programs favor large companies. This is the case for Ohio's refundable Job Creation Tax Credit, the state's most widely used industrial tax credit. Firms must commit to adding a minimum of 10 new jobs and at least \$660,000 in new payroll within a three-year period.⁸ Thus, a firm of 50 employees, the top end of our small business category, would have to commit to increasing employment by 20 percent to 50 percent to qualify.

Unfortunately, data on the size and industries of firms receiving job creation tax credits in Ohio is limited, yet, it suggests that firms with more than 100 employees receive the vast majority of the state's economic incentives. Conservatively, we estimate that since 2010, firms with at least 100 employees received 50 percent of the state's Job Creation Tax Credit awards, accounting for 77 percent of the total dollar value (\$474,682,625).⁹ This aligns with analysis of more than 4,200 economic development incentive awards in 14 states that found that companies with more than 100 employees received the dominant share of tax incentives, ranging between 80 and 96 percent of their dollar values (LeRoy et al., 2015).

Politicians and economic development officials often simultaneously support industrial recruitment using tax incentives and small business development, but Glaeser et al. (2015) suggest that these two goals might conflict. Their findings points to a connection between the presence of large companies in a region and a long-term suppression of entrepreneurial activity due to large firms crowding out small businesses and entrepreneurs as they compete for labor and land. This effect is likely more pronounced in areas with low levels of population growth like Ohio, and can be further exacerbated by tax incentives.

Consider the following example. The state finds itself in a position in which a manufacturer is looking to build a new facility here or in other states. The firm expresses concern about its ability to attract the necessary workers. Given the state's current economic development priorities, it is likely that Ohio would address this concern by providing job creation tax credits. The firm could use these credits to pay higher wages and attract its workforce. This, in turn, would force other businesses in the region to raise wages, or risk losing employees to the new firm. Depending on the size of the wage effect, it is quite possible that the tax incentives compensate the new employer at the expense of other businesses in the area, including small businesses and potential entrepreneurs. Such concerns can be exacerbated as small businesses are less prone to relocate to China or

⁸ \$660,000 is equivalent to 25 full-time employees earning 175% of the federal minimum wage

⁹ Our estimates are calculated using data from the Ohio Department of Development. Since firm size is not included in the data, we back out a lower bound estimate for the Job Creation Tax Credits going to firms with more than 100 employees using the available data. To construct our sample of large firms, we first take all firms that report retaining at least 100 employees in the incentive application. We then add to it all firms that commit to creating at least 100 jobs in the incentive application. All other firms that do not meet these criteria are counted as small businesses, although it is possible that large firms that do not report retention numbers but apply for incentives for fewer than 100 new jobs might be included in the small business group.

elsewhere, meaning that the gains in attracting large firms may also be temporary. By contrast, the effects of supporting small business and new business development may have much higher payoff in the long-run.

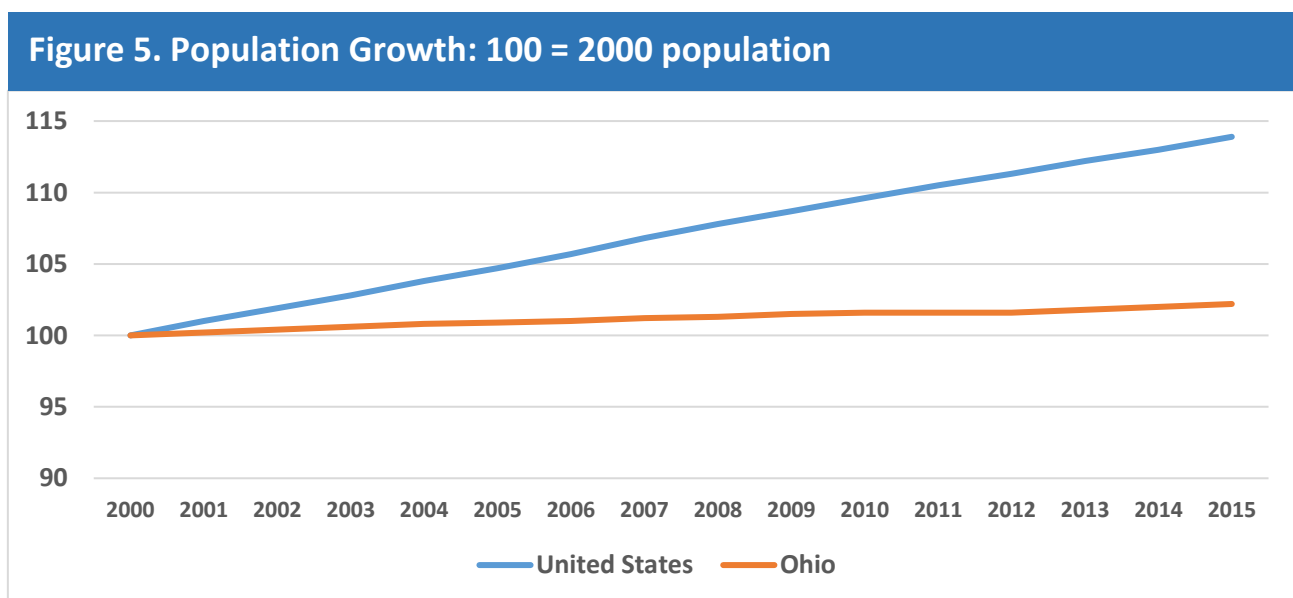
A further analysis would need to consider the opportunity cost of spending tax dollars on incentives instead of on other public programs that could benefit businesses broadly, such as improving infrastructure, investing in education, or broadly reducing taxes for all businesses. Similarly, local tax incentives must also be considered, which can also create market distortions at the expense of small businesses and entrepreneurs.

If the state is going to take seriously its stated commitment to supporting small businesses and entrepreneurs, it must take these tradeoffs seriously in its evaluation of tax credit requests. A simple first step is to conduct a thorough analysis of the effectiveness of Ohio's business incentive system. Many states have conducted rigorous evaluations of their incentive systems. For example, Missouri and Connecticut both complete regular empirical analysis of their economic development tax incentive programs and estimate the direct and in-direct costs and program benefits. Similarly, the Ohio Tax Credit Authority and JobsOhio should explicitly weigh the potential in-direct negative effects of granting tax credits in their decision-making process.

Focus on Population Growth

Population growth has been identified as a key influential factor for explaining differences in entrepreneurial rates across regions (Armington & Acs, 2002). There are two main reasons why this applies. First, as population grows and markets expand, opportunities emerge for entrepreneurs to new customers and markets. Second, population growth increases the share of potential entrepreneurs in the population. This factor is likely particularly important in areas, like Ohio, that have low levels of small business and new firm employment. An influx of new entrepreneurs could help to counteract the industrial and generational effects that reduce long-term entrepreneurship identified by Glaeser et al. (2015) and Fairlie and Robb (2007).

Since 2000, Ohio has lagged far behind the U.S. average in population growth, and since 2010, the state has averaged a loss of 10,000 residents per year through net-out migration. Benchmarking the country and Ohio in 2000, Figure 5 shows how far the state has lagged in population growth since 2000, but keep in mind this is a problem that dates to the middle of the 20th Century.



Population growth tends to be treated as a byproduct of industrial growth, yet, Ohio's singular focus on industrial recruitment and expansion has not translated into substantial population growth. One explanation for this disconnect is that amenities, as opposed to employment alone, had a much more significant effect in driving migration patterns in the U.S. in the second half of the 20th Century. This means that increasingly, jobs are following people instead of people following jobs.

This suggests that a policy aimed at increasing small business employment and entrepreneurial activity must be broader than taxes or small business support programs. The development of amenities and quality of life also plays a critical role, and population growth should be considered as much a goal as industrial growth. While many of Ohio's larger regions are leading the way by developing natural and built amenities, the state still has an important role to play in helping to coordinate investments that span across regions, and the development of amenities in rural Ohio.

Spurring entrepreneurship and the growth of small businesses is a multi-faceted challenge that includes reducing regulatory burdens. It will require a focus on expanding opportunities for young people to gain entrepreneurial experience, taking into account the full costs and benefits of the state's focus on industrial recruitment, and focusing on increasing population by improving Ohio's amenities and quality of life.

References

- Acs, Zoltan J., and Catherine Armington. "The impact of geographic differences in human capital on service firm formation rates." *Journal of Urban Economics* 56.2 (2004): 244-278.
- Armington, Catherine, and Zoltan J. Acs. "The determinants of regional variation in new firm formation." *Regional Studies* 36.1 (2002): 33-45.
- Betz, Michael, Michael Farren, Linda Lobao, and Mark D. Partridge. (2015) "Coal Mining, Economic Development, and the Natural Resources Curse." *Energy Economics*. (50), 105-116.
- Birch, David GW. "The job generation process." (1979).
- Blanchard, Lloyd, Bo Zhao, and John Yinger. "Do lenders discriminate against minority and woman entrepreneurs?." *Journal of Urban Economics* 63.2 (2008): 467-497.
- Blanchflower, David G., Phillip B. Levine, and David J. Zimmerman. "Discrimination in the small-business credit market." *Review of Economics and Statistics* 85.4 (2003): 930-943.
- Captain, Sean. Wanted: Thousands Of New Employees To Help Build Tesla's Autonomous Electric Cars. 29 December 2015. <<http://www.fastcompany.com/3055020/wanted-thousands-of-new-employees-to-help-build-teslas-autonomous-electric-cars>>.
- Emmons, William R., and Bryan J. Noeth. "Race, Ethnicity and Wealth." *The Demographics of Wealth* (2015).
- Glaeser, Edward L., Sari Pekkala Kerr, and William R. Kerr. "Entrepreneurship and urban growth: An empirical assessment with historical mines." *Review of Economics and Statistics* 97.2 (2015): 498-520.
- Henderson, Loren, et al. "Credit Where Credit is Due?: Race, Gender, and Discrimination in the Credit Scores of Business Startups." *The Review of Black Political Economy* 42.4 (2015): 459-479.
- Lee, Sam Youl, Richard Florida, and Zoltan Acs. "Creativity and entrepreneurship: A regional analysis of new firm formation." *Regional studies* 38.8 (2004): 879-891.
- LeRoy, Greg, Carolyn Fryberger, Kasia Tarczynska, Thomas Cafcas, Elizabeth Bird, & Philip Mattera. "Shortchanging Small Business: How Big Businesses Dominate Economic Development Incentives." October 2015. GoodJobsFirst.org. Report.
- Li, Minghao, Stephan J. Goetz, Mark D. Partridge, and David A. Fleming. (forthcoming) "County Location Determinants of the INC5000s." *Entrepreneurship & Regional Development*. DOI: 10.1080/08985626.2015.1109003.
- McGranahan, David A., Timothy R. Wojan, and Dayton M. Lambert. "The rural growth trifecta: outdoor amenities, creative class and entrepreneurial context." *Journal of Economic Geography* 11.3 (2011): 529-557.
- Partridge, Mark D. "The duelling models: NEG vs amenity migration in explaining U.S. engines of growth." *Papers in Regional Science* 89.3 (2010): 513-536.

Partridge, Mark, Mark Rembert, & Michael Betz. "How should the U.S. government help coal communities?" 15 February 2016. *The Conversation*. <<https://theconversation.com/how-should-the-u-s-government-help-coal-communities-53475>>

Ohio Department of Development. "Ohio Economic Development Incentive Study." 2009.

Stephens, Heather M., and Mark D. Partridge. "Do entrepreneurs enhance economic growth in lagging regions?." *Growth and Change* 42.4 (2011): 431-465.

Stephens, Heather M., Mark D. Partridge, and Alessandra Faggian. "Innovation, entrepreneurship and economic growth in lagging regions." *Journal of Regional Science* 53.5 (2013): 778-812.