BUSINESS INCUBATOR DEVELOPMENT IN THE STATE OF OKLAHOMA DURING 2000-2017

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ABSTRACT

In 1997 the Oklahoma legislature passed the Small Business Incubators Incentives Act in an effort to "promote, encourage and advance economic prosperity and employment throughout the state by creating a more favorable tax climate for organizations which qualify as sponsors of small business incubators in this state and a more favorable business climate for tenants." To-date there has been no formal analysis of the aggregate yearly data collected by the Oklahoma Department of Commerce regarding the incubators certified through the program. Utilizing data from 2000 through 2017, this review organizes and analyzes the information to have a picture of the development of Oklahoma's business incubators through the years and to discover what questions and trends might be beneficial and of interest for further investigation.

INTRODUCTION

Business incubators have become an important ingredient in the economic development and entrepreneurship ecosystems around the world. In 2012 the International Business Innovation Association (InBIA) reported that there were around 1,250 incubators in the United States and an estimated 7,000 globally (NBIA, 2012). The state of Oklahoma has been very active in its promotion of business incubators, including passing legislation to provide a tax break for both the sponsors and startup companies in incubators. In 1987 the Oklahoma legislature passed the Oklahoma Small Business Incubators Incentives Act and amended it in 2001. According to the Act, this is an effort to "promote, encourage and advance economic prosperity and employment throughout the state by creating a more favorable tax climate for organizations which qualify as sponsors of small business incubators in this state and a more favorable business climate for tenants." The act called for the Oklahoma Department of Commerce (ODOC) to certify any incubator that sought to take advantage of the act and create a yearly report to the legislature on the activities of those certified incubators and their tenants.

The incentives built into the act give the sponsors of the incubator (if applicable) up to a 10-year tax exemption on any income received for providing services or financing the incubator. The tenants of the certified incubators are also eligible for a minimum of 5-years' and up to a 10-years' income tax exemption so long as they are upstanding current residential tenants or graduates of the certified incubator program. The exemption remains in effect after the tenant graduates from the incubator. If after five years the tenant makes at least 75% of its gross sales to out-of-state buyers, to buyers located within the state if the product or service is resold to an out-of-state customer, or to the federal government, then the tax exemption extends for another five

years for a total of ten years. According to the Oklahoma Department of Commerce (ODOC, 2015), since the inception of the legislation Oklahoma has benefited from increased revenues and increases in the number of startups and expansions of small businesses.

BACKGROUND LITERATURE

States and other formal entities engaged in economic development have been increasingly turning to entrepreneurship development for the last few decades. This has been the result of a growing body of research that shows the vital importance of entrepreneurship in building and maintaining economies (Becker, 1993; Garavan & O'Cinneide, 1994, 1994b; Matlay, 2001; Mueller & Goic, 2002; OECD, 1999; Piazza-Georgi, 2002; Schultz, 1971; Schultz, 1993; Audretsch, Keilbach, & Lehmann, 2006). In a study that looks at employment growth and entrepreneurship, Adrangi, Allender, and Anderson (2003) suggest that employment and entrepreneurial activity are positively related. They conclude that small entrepreneurial firms do have a net positive impact on job creation. Bruce, Deskins, Hill, and Rork (2007) found that new firm creation is the single largest determinant of Gross State Product (GSP), Total State Employment (TSE), and State Personal Income (SPI).

In terms of the true economic impact of focusing on startups, Don Macke (2005) of the Center for Rural Entrepreneurship references research by David Birch who indicates that business startups produce 44% of new job creation nationally. Macke also references the National Commission on Entrepreneurship, which found that entrepreneurial growth comprises two-thirds of all job creation and two-thirds of all business growth. Other studies and reports show that nearly all new job creation comes from young firms (Kauffman, 2015; Haltiwanger, et al. 2013; Neumark et al. 2013).

Johnsrud, Theis and Bezerra (2003) point out that while the concept of business incubation is uniquely Western, it has taken hold around the world and business incubation is seen today as an important economic development tool. Researchers and policymakers have identified business incubators as important to the development of entrepreneurs and entrepreneurial ecosystems (Hansen et al., 2000; Bøllingtoft & Ulhøi, 2005; Hughes et al., 2007; Arena, et al., 2008; Nasr, 2012). Business incubators in the United States alone have a wide reach with the International Business Innovation Association [InBIA, formerly known as the National Business Incubation Association (NBIA)] estimating that in 2011 North American incubators served more than 49,000 startup companies. These companies provided full-time employment for more than 200,000 workers that generated annual revenues of more than $15 billion (NBIA, 2012). Allen and Bazan (1990) report that firms graduating from incubators in Pennsylvania had a lower failure rate than nonincubated firms, and that incubator tenants had statistically significant better performance in sales and employment. The study also found that once the companies graduated, they did not outperform other firms in the same marketplace. This finding suggests that the value of the business incubator is in stabilizing the company in its early years so that it can survive to enter the marketplace with nonincubated firms.

From an infrastructure perspective, a 2008 analysis of the U.S. Department of Commerce's Economic Development Administration construction grants showed that business

incubator construction grants had the greatest impact on job creation out of all their funding project categories—that is, Business Incubators, Commercial Structures, Roads & Transportation, Industrial Parks, and Community Infrastructure (Arena, Adams, Noyes, Rhody, & Noonan, 2008).

DATA

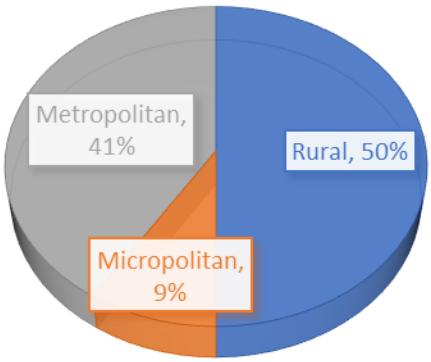
This study utilized the Oklahoma Department of Commerce's "Oklahoma Small Business Incubator Certification Program" reports from 2000 to 2017. The reports from ODOC have undergone an evolution in both content and format over the years. All the reports have the following information in common: list of certified incubators with location, newly created incubators (referred to herein as incubator births), and the incubators that closed (referred to as incubator deaths). Beginning in 2005 the state began adding to the reports the types of businesses targeted by each incubator, and the number of tenants that created jobs in each incubator. In addition to the data included in the reports, this researcher added the categories of population to identify the incubator location as Rural (<10,000), Micropolitan (10,000–49,999), or Metropolitan (>50,000), as well as the type of sponsor of the incubator.

The data used in this analysis of the Oklahoma Small Business Incubator Yearly Reports included the following:

- Name/Location of the certified incubators
- Number of Companies – For the years 2005 through 2015 information was reported annually for the number of resident companies by each incubator.
- Type of Incubator – Classified by their type or primary client target. The categories are: Aerospace & Defense, Art, Biomed/Biotech, Kitchen/Food, Mixed Use/Manufacturing, Professional Office, Retail, Service, Student, and Technology.
- Location Classification: Rural (<10,000); Micropolitan (10,000–49,999); Metropolitan (>50,000)
- Primary Incubator Sponsor: College, Community, Economic Development Entity, Private, Technology Center

Oklahoma is a rural state with a 2014 Census Bureau population estimate of 3,879,610. In the year 2000 the population was 3,450,654. Currently there are only 10 cities that fit the Metropolitan category. Figure 1 shows that these cities contain 41% of the population. Also, there are 16 cities categorized as Micropolitan and they contain 9% of the population, with the remaining 50% residing in rural areas.

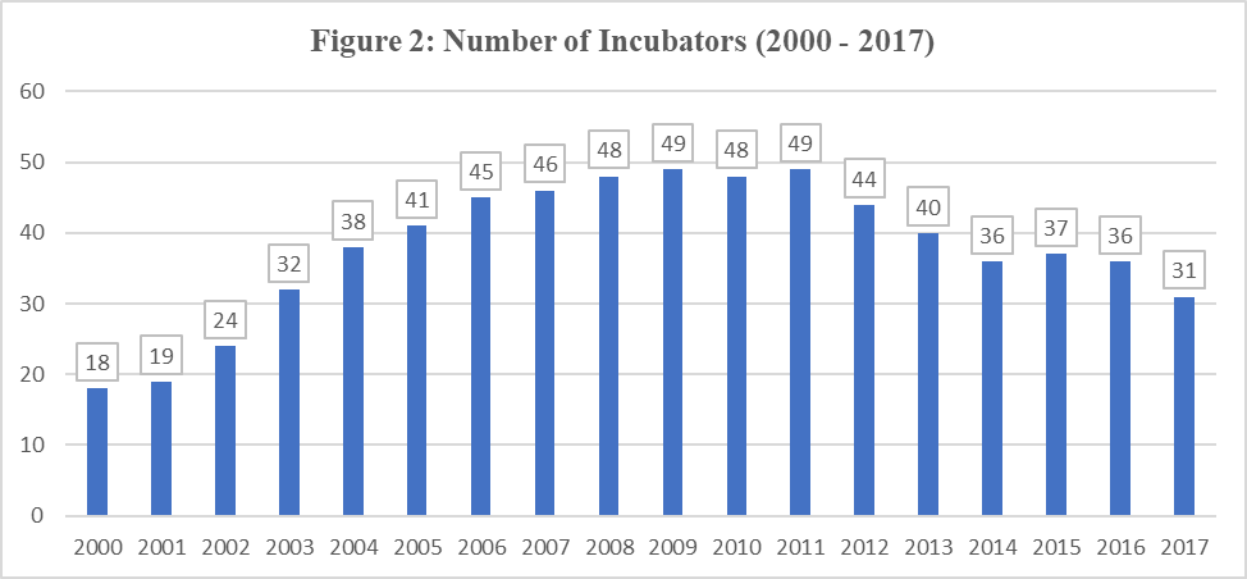
Figure 1: Oklahoma Population (2014)



FINDINGS – HISTORICAL SNAPSHOT OF OKLAHOMA'S BUSINESS INCUBATORS

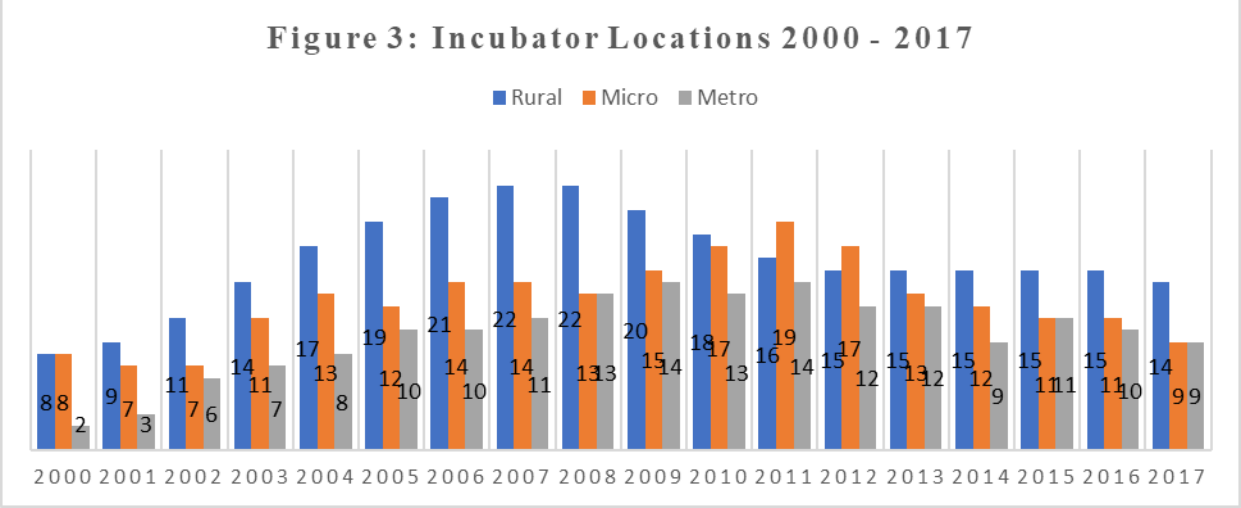
Incubator Population

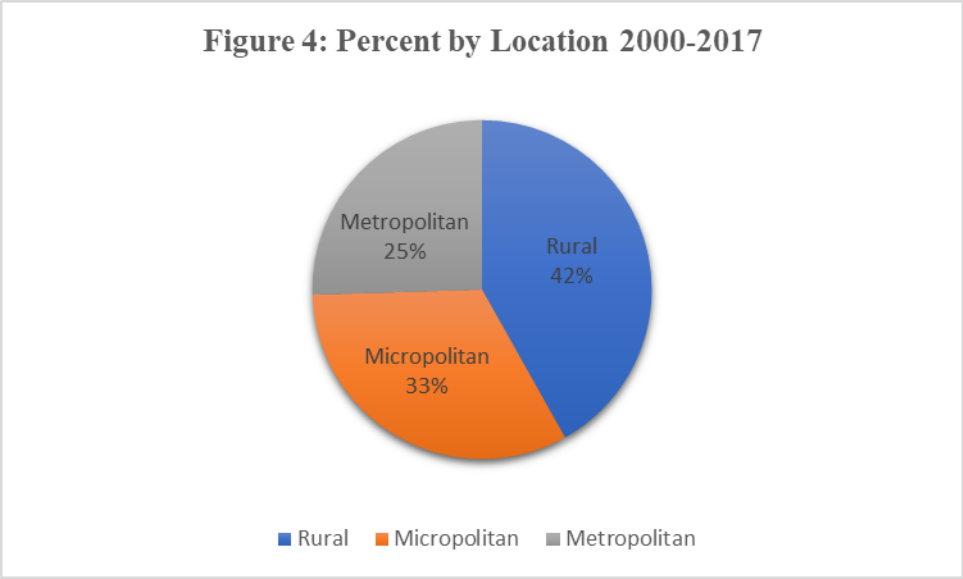
At the end of 2017, the State of Oklahoma was home to 31 certified incubator programs (Figure 2). Historically, the incubator population in the state saw consistent growth from 2000 through 2011, peaking at 49 distinct incubator programs in 2011. Beginning in 2012 the incubator population decreased around 10% per year to a low of 36 in 2014. The number of incubators in the state stayed steady for three years. In 2017 the number dropped to a level that had not been seen since 2003 when there were 32 incubators. This trend followed the national trends of economic downturn; however, 2017 saw a sharper drop of incubators in the state while the national economy advanced. This may reflect a lag in response time by the local entrepreneurship support ecosystems, or an overall change in the entrepreneurship activity in the state.



Incubator Locations

Across the three locations or geographic categories, Rural incubators had the highest count during all but the two years 2011 and 2012 (Figure 3). The Micropolitan programs had the second highest number during all but two years where they eclipsed the Rural in 2011 and 2012 while representing only 9% of the population. The Metropolitan programs consistently have the smallest number of incubator facilities while representing 41% of the state's population. On average across the years, the incubator ecosystem in Oklahoma is seen to be 42% Rural, 33% Micropolitan, and 25% Metropolitan (Figure 4).





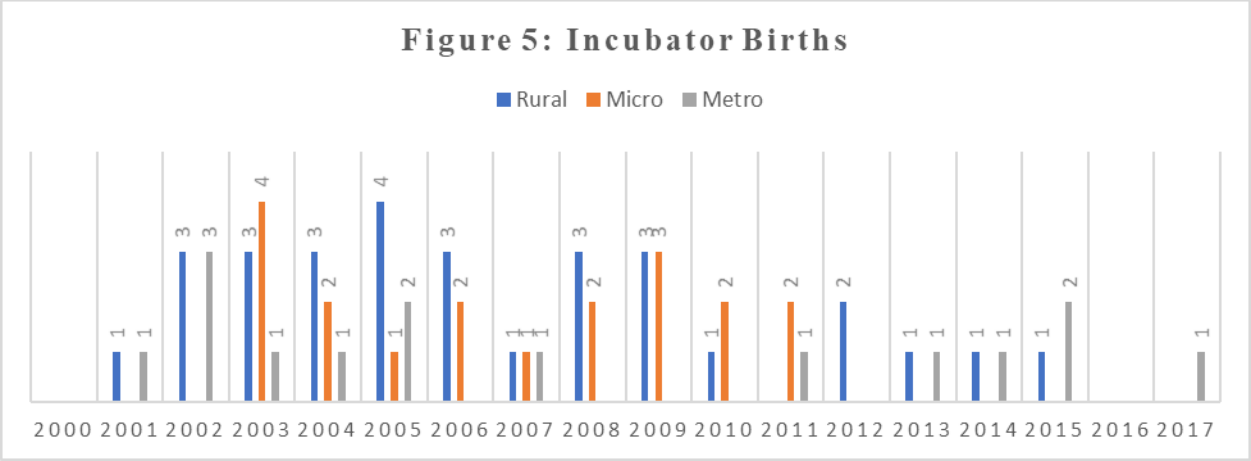
Considering that the rural population represents around 50% of the total population of the state, it appears to suggest that the highest count of incubators is found here as well. While this is the case with the number of incubators, we will see that the number of companies housed in the rural incubators is out-of-proportion with the number of incubator locations.

It is interesting that with only 9% of population in the Micropolitan category, it has consistently evidenced the second-largest number of incubators in the state. One of the possible explanations for this may be that those who take responsibility for economic development in these areas focus more on the strategy of entrepreneurship as the contributor rather than their smokestack-chasing policies. It could also be that the Micropolitan areas see more dynamism in their entrepreneurship activity with more of the resources needed for a healthy entrepreneurship ecosystem. This is certainly an area for further investigation.

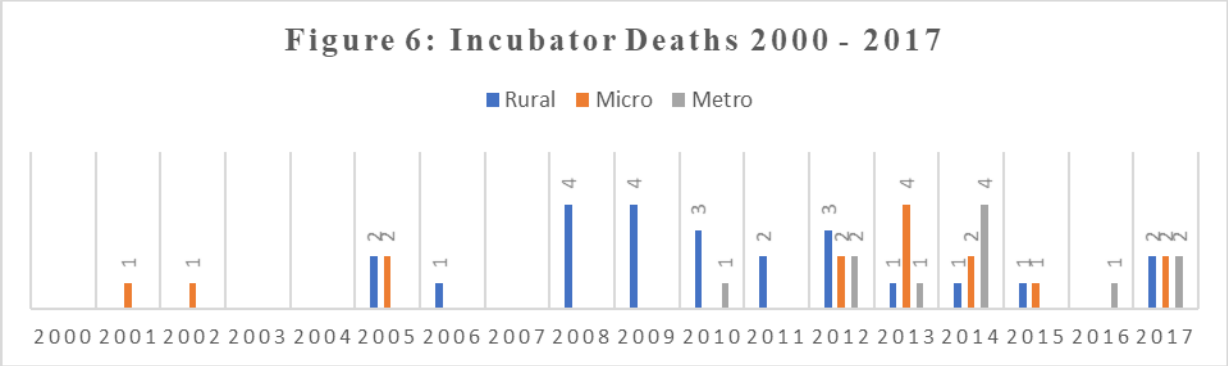
Births and Deaths

Incubators, like the startups they seek to promote, also have lifespans. This dataset starts with 18 pre-existing programs. The data in this section looks at the growth from that point forward. Between the years 2000 and 2017 there were 64 incubator births and 50 incubator deaths with an average of 3.5 births per year and 2.87 deaths per year (Figures 5 & 6). When looking beyond the averages we can see in Figure 5 that the growth of the incubator ecosystem was strongest from 2002 to 2009 and has generally been contracting since 2012.

The Rural category had the most births and deaths with 30 (46%) and 24 (48%) respectively. The Micropolitan category followed with 19 births (30%) and 15 deaths (30%) while the Metropolitan saw 15 births (24%) and 11 deaths (22%). There have been no Micropolitan incubators created since 2011, but there were 9 Micropolitan Incubator deaths between 2012 and 2017.



Of the incubator deaths, 56% of the incubators were sponsored or managed in partnership by Economic Development Entities. The remaining deaths were shared somewhat evenly with Colleges- and Community-sponsored incubators at 12% each, and Technology Centers and Private at 10%. As with most death rates, one might expect that the largest population group would likely have the highest number of deaths and this is the case here as well. The death rate follows suit through the categories in all but one of the cases with the smallest category (Community) being equal with Colleges as having the third-highest percentage of deaths while only making up on average 5% of the total incubator count.

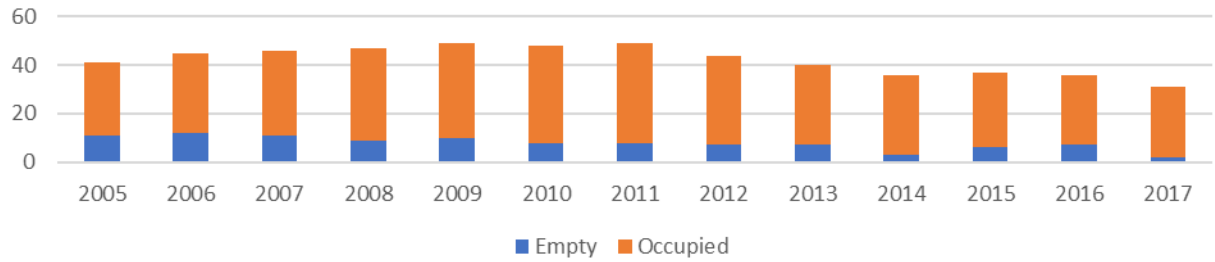


Incubator Occupancy

An interesting finding in the analysis of the data has to do with the number of empty incubators on a year-to-year basis. For the years client company data was reported (2005 to 2017), there are several incubators that reported no clients (Figure 7). The empty incubator figure ranges from a high of 26% of all certified incubators in Oklahoma reporting zero clients in 2005 and 2006, to a low of 6% being empty in 2017. When looking at the yearly empty programs the Rural category averaged 47% of all yearly empty programs, followed by Micropolitan with 35%, and Metropolitan with 17%. One of the possible reasons for these empty incubators is that in

rural communities the sponsoring entities are seeking to add the Small Business Incubator Tax incentive into their mix of economic development attraction tools, and go through the steps to have an incubator certified as a possible attraction to companies or entrepreneurs in the rural areas. A positive trend in the Occupied & Empty data appears to be that as the incubators mature, they have fewer years with zero clients across all Location categories. In addition, communities and organizations that have empty incubators may be finding other ways to utilize those physical location resources.

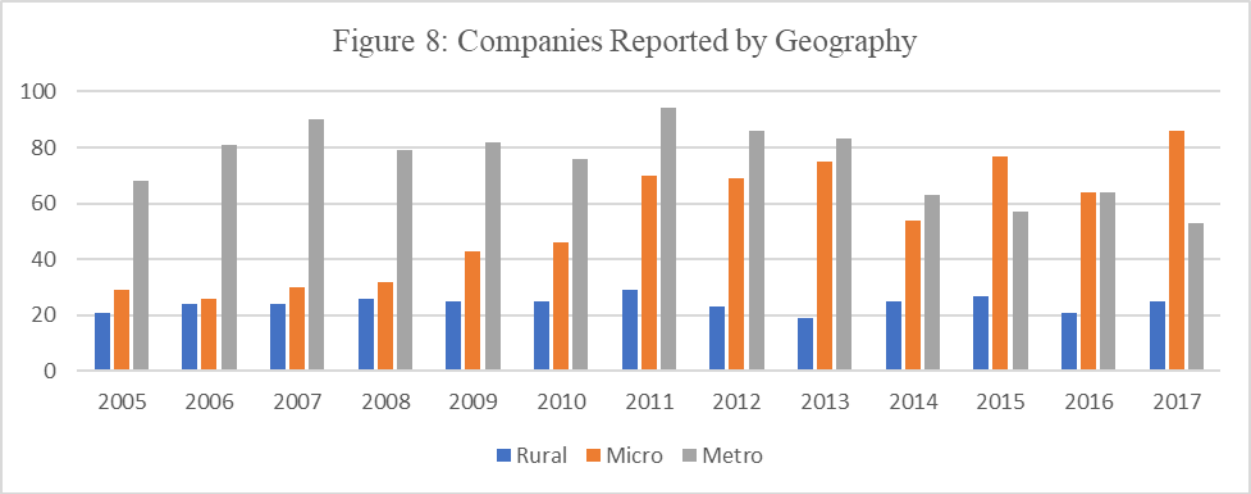
Figure 7: Empty vs. Occupied



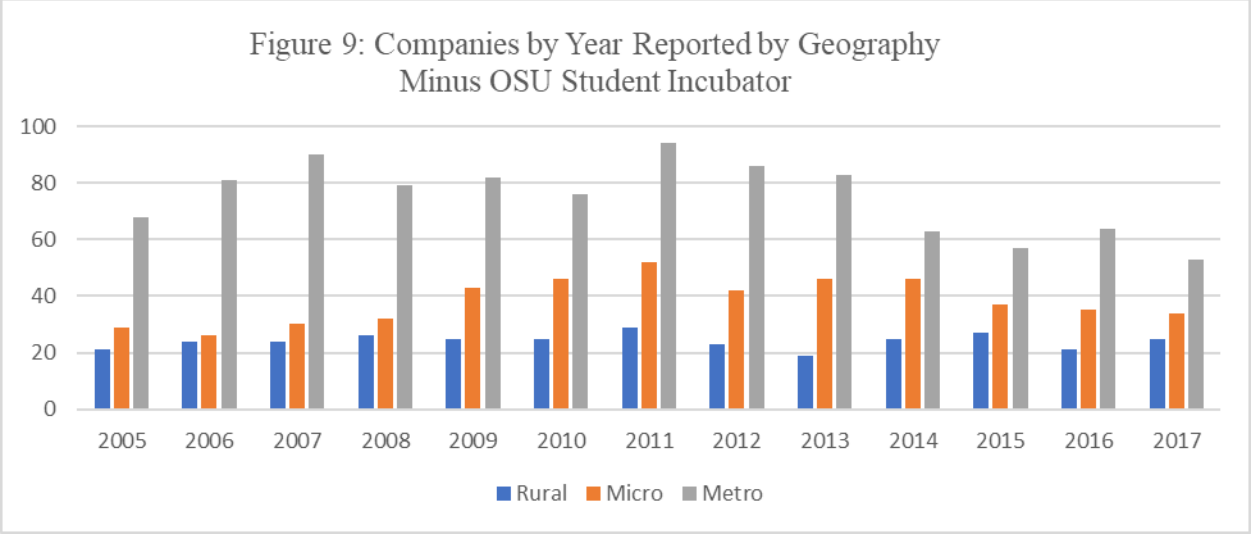
Companies

Two key metrics for incubators across the globe are: number of companies, and number of jobs created and/or supported. For this Oklahoma dataset there are yearly counts of the number of companies supported in the various programs for the years 2005 to 2017.

As seen in Figure 8, while the Metropolitan incubators consistently make up the lowest average yearly total of incubator programs (25%), they were responsible for the most client companies until 2014 when the Micropolitan category began to lead in the number of companies hosted. Considering all Locations together, the average number of companies per incubator across all years is 5.33, but this includes the empty or inactive incubators. This number jumps to 13.40 companies per active incubator when one removes the unoccupied incubators (for the years reported, 2005-2017).



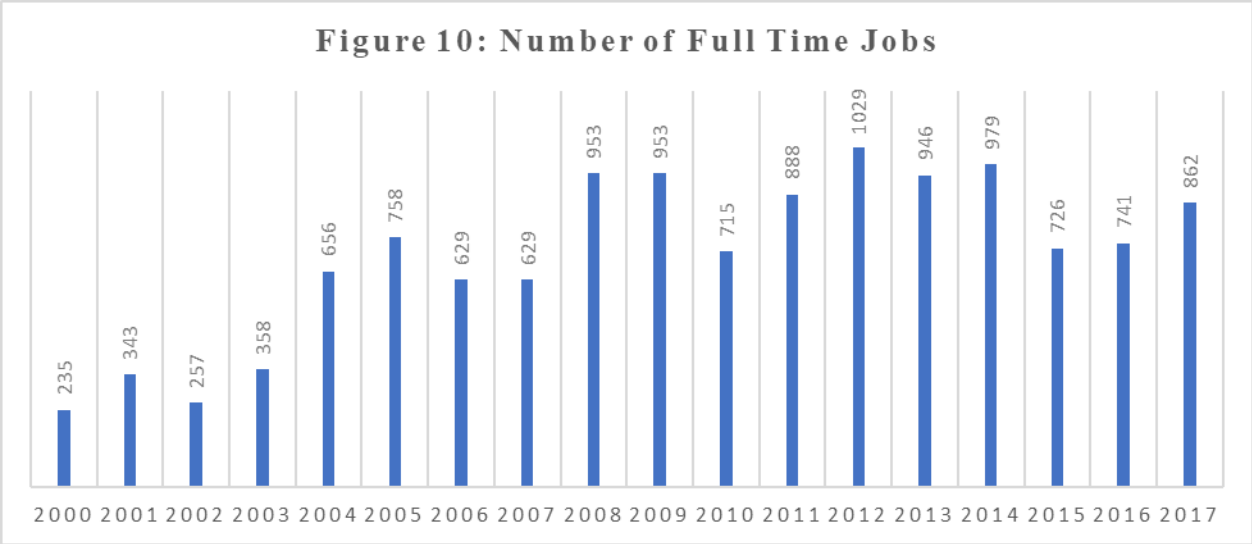
One of the contributing factors to the Metropolitan category losing some ground is that from 2014 to 2017 this category suffered 7 deaths against only 3 births. While fewer programs would lead to fewer companies, the main reason for the Micropolitan category taking the lead is due to there being only one program for each location. This program is the student incubator at Oklahoma State University in Stillwater. The number of companies reported by Oklahoma State University starting in 2011 through 2017 were 18, 27, 29, 8, 40, 29, and 52, respectively. Without the student companies factored into the results, the trends remain the same since the beginning of the dataset with the Metropolitan programs leading in terms of number of companies hosted (Figure 9).



On average, the Metropolitan programs supported 52% of all reported incubated companies followed by Micropolitan with 32% and the Rural incubators supporting 17% while having the highest number of incubator locations.

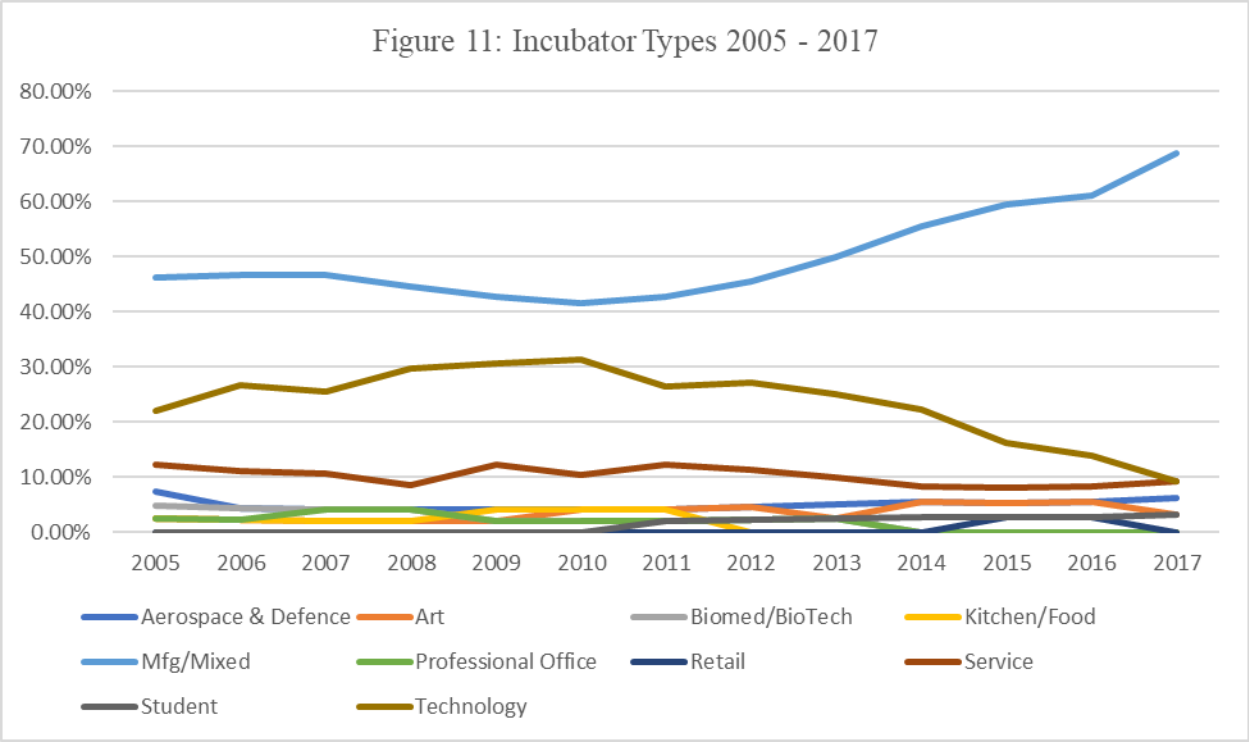
Jobs

The number of jobs created or supported is one of the most commonly considered and important metrics for incubator programs. While the Oklahoma State data does not attribute jobs to individual incubators, the reports give yearly jobs in aggregate from all the certified incubators. In terms of jobs, the data shows a mostly increasing number of jobs supported by the Oklahoma incubators (Figure 10). Considering all Locations together, the average number of jobs supported by each incubator across all years is 18.39, but when one removes the unoccupied incubators, that average jumps to 21.47.



Incubator Types

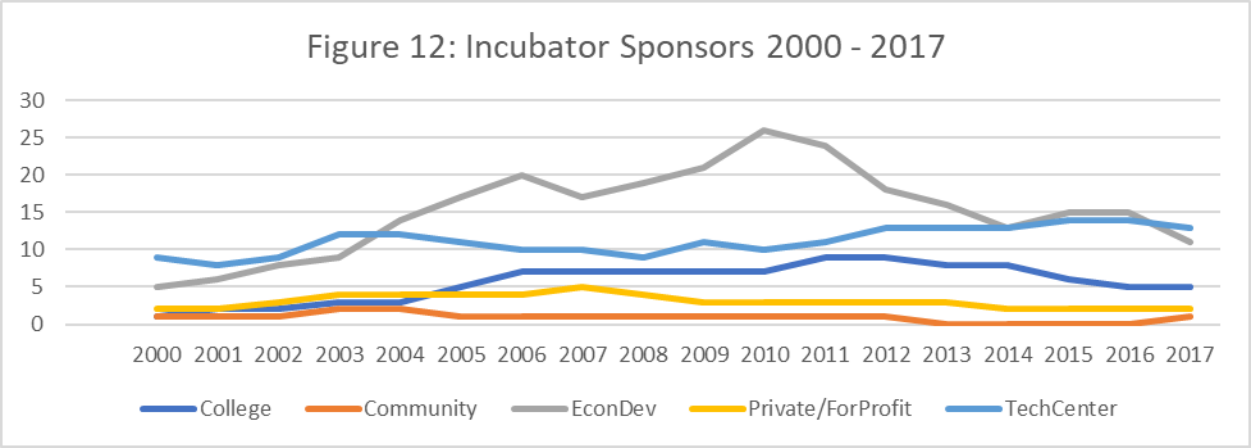
Incubators vary widely in terms of their client company focus for startup assistance. This analysis condensed the multiple incubator types or focus areas into the following: Aerospace & Defense, Art, Biomed/Biotech, Kitchen/Food, Mixed Use/Manufacturing, Professional Office, Retail, Service, Student, and Technology (Figure 11). The Incubator Type data covers the years 2005 to 2017 as the ODOC did not begin reporting types until 2005.



Consistent with national trends, the most common type of business incubator in Oklahoma is the Mixed Use/Manufacturing category with an average of 50%. Technology-focused incubators averaged around 24% with the Service category averaging 10%. Aerospace & Defense, Art, Biomed/Biotech, Kitchen/Food, and Professional Office made up between 1.5% and 6% of the average yearly total. Interestingly, as of 2017 the only certified student-focused incubator was at Oklahoma State University; and the first certified Retail-focused incubator opened in 2015 in a Hispanic-focused mall redevelopment, but that facility closed in 2017.

Incubator Sponsors

There are a variety of incubator sponsors represented in the Oklahoma data. For the purpose of this analysis the primary incubator sponsor categories are College, Community, Economic Development Entity, Private, and Technology Center. In Oklahoma, the Technology Centers are secondary and post-secondary career and technology education institutions found throughout the state. (see Figure 12).



The smallest category of incubator sponsors in Oklahoma is the Community category with an average of 2% of all programs across the dataset. These represent primarily municipalities/cities that provide support and facilities for the incubator program. In Oklahoma all the Community sponsors are in Rural areas. In many cases, they may contract the client service provision to another entity or partner. The next largest category is that of the Private incubators with an average of 8%. The third-largest sponsor comprises Colleges (16%) which include both 2- and 4-year institutions. As previously noted, these college sponsors are operating facilities that primarily cater to the community with only Oklahoma State University running a student-focused program. Technology Center sponsors are the fourth-largest category on average (31%), and in certain years have been the largest. The current trend is seeing the Technology Center sponsors regaining the top spot. The final and largest category is that of Economic Development Entities representing 42% of sponsors on average across all years.

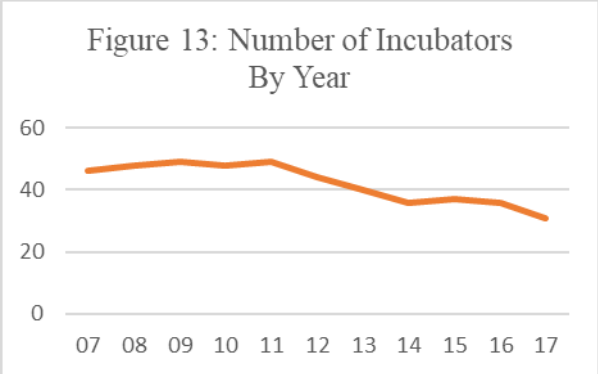
COMPARISON TO KAUFFMAN INDEX TRENDS

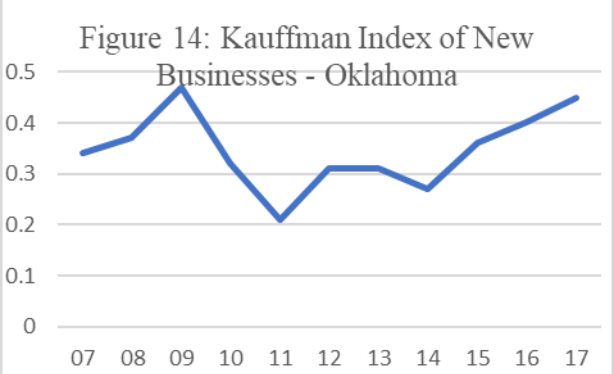
In considering the growth of incubator activity in Oklahoma, it is interesting to see how this compares to national and state trends in entrepreneurship. If there were increasing numbers of startups in an ecosystem, would one expect to see an increasing number of incubators as well? Are incubators created as a reaction to increased entrepreneurship?

To begin to look at this question, a comparison was done with the Kauffman Index of Entrepreneurial Activity (KIEA) on the state level. State-specific data began in 2007 for the Kauffman Index. For the sake of this research about Oklahoma's incubators, the state-specific data for 2013 is missing as Kauffman was while adjusting the methodologies of the KIEA analysis, and no report for that year could be found. In this comparison, the Kauffman index rate of new entrepreneurs was utilized, and is represented in the Kauffman reports as a decimal. For example, in 2017 Oklahoma had a Kauffman rating of .45, which translates to 450 out of every 100,000 adults creating businesses. In recent years, Oklahoma has had one of the highest rates of new entrepreneurs in the country. In 2017 Oklahoma had the second highest growth in

entrepreneurial activity, behind only South Carolina. Because there is no state-specific data for the year 2013, the same rate for 2012 was used.

We do not see a similar trend when looking at the growth of incubators in Oklahoma compared to the rate of entrepreneurial activity (Figure 13). Oklahoma's incubator count reached a high in 2011 and has since been on a downward trend, while the Kauffman Index of New Businesses has seen a trending increase during this same period (Figure 14).





This initial evaluation shows that in Oklahoma during the period represented (2007-2017), the growth of incubators was not coextensive with the growth of entrepreneurship in general. In this specific situation, many further questions arise about what drives incubator creation and growth.

CONCLUSIONS

From this data we see an incubator ecosystem that predictably reflects its rural state but, in some ways, may show surprising results. As one might expect, rural incubators make up the majority of the programs, but they account for a relatively small percentage of overall companies and jobs. It is the Metropolitan locations that have the fewest programs, but with the highest number of companies supported. This data is not suggesting that the Metropolitan incubators are a better investment, or that they are of greater value than the rural incubators. This could be an area for further research that looks at the specifics of the companies and jobs created, and the cost of running the various programs. Oklahoma looks very much like the rest of the country in terms of having most of their programs reflecting a Mixed-Use focus.

In terms of the birth and death of incubators, this data reveals a consistent growth of programs for 12 of the 16 years in the dataset, although the recent trend has been towards a contraction in the number of incubators. It is interesting to note that during the first few years of the economic downturn (2008-2011) the number of incubator programs reached their highest count to-date, and after 2012 the number of programs began to drop to their lowest levels in 10 years. This is also an area for further research in terms of looking at the reasons for the deaths of the programs, and the motivations and rationale for creating new programs. A particularly

interesting point of further research may lie in looking at how the startup of Entrepreneurship Support Organizations (ESOs) compares to the startup process of the companies these organizations are hoping to serve.

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REFERENCES

Adrangi, B., Allender, M., & Anderson, R. (2003). An empirical analysis of the relationship between employment growth and entrepreneurial activity. *Academy of Entrepreneurship Journal, 9*(1), 21-30.

Allen, D. & Bazan, E. (1990). *Value-Added Contributions of Pennsylvania's Business Incubators to Tenant Firms and Local Economies.* State College, PA: Appalachian Regional Commission & Pennsylvania Department of Commerce.

Arena, P., Adams, J., Noyes, K., Rhody, S., & Noonan, M. (2008, September). *Construction grants program impact assessment report: Volume I — Report on investigation and results*. Washington, DC: U.S. Department of Commerce Economic Development Administration.

Audretsch, D. K. (2006). The knowedge spillover theory of entrepreneurship and economic growth. *Economia e Politica Industraiale* (3), 25-45.

Becker, G. (1993). *Human capital*. Chicago, IL: University of Chicago Press.

Bøllingtoft, A. & Ulhøi, J. (2005). The Networked Business Incubator - Leveraging Entrepreneurial Agency? *Journal of Business Venturing*, *20*(2), 265–290.

Bruce, D., Deskins, J., Hill, B., & Rork, J. (2007). *Small Business and State Growth: An Econometric Investigation.* Washington D.C.: Small Business Administration.

Arena, P., Adams, J.A., Noyes, K., Rhody, S., & Noonan, M. (2008). *Construction Grants Program Impact Assessment Report: Vol. 1 Report on Investigation and Results.* Washington, DC: US Department of Commerce.

Garavan, T., & O'Cinneide, B. (1994). Entrepreneurship education and training programs: A review of and evaluation - Part 1. *Journal of European Industrial Training, 8*(8), 3-12.

Haltiwanger, J., Jarmin, R., & Miranda, J. (2013). Who ceates jobs? Small versus large versus young. *The Review of Economics and Statistics, 95*(2), 347-361.

Hansen, M., Chesbrough, H., Nohria, N., & Sull, D. (2000). Networked incubators: hothouses of the new economy, *Harvard Business Review*, *78*(5), 74–84.

Johnsrud, C., Theis, R., & Bezerra, M. (2007). *Business Incubation: Emerging Trends for Profitability And Economic Development in the US, Central Asia and the Middle East.* Washington, DC: Technology Administration of the US Department of Commerce & Pathfinder Research, Inc.

Kauffman (2015). Entrepreneurship Policy Digest: The importance of young firms for economic growth. Kauffman Foundation.

Macke, D. (2005, November 3). *Economic Gardening: Growing Your Own Business*. *Speech presented for the Iowa Area Development Group, De Moines, IA*.

Matlay, H. (2001). Entrepreneurial and vocational education and training in Central and Eastern Europe. *Education + Training, 42*(8/9), 395-404.

Mueller, S., & Goic, S. (2002). Entrepreneurial potential in transition economies: A view from tomorrow's leaders. *Journal of Developmental Entrepreneurship, 17*, 226-235.

Nasr, N. (2012). Incubators propel clean energy forward. *Industrial Engineer*, *44*(6), 28.

NBIA. (2012). *2012 State of the Business Incubation Industry*. Athens, OH: NBIA Publications, National Business Incubation Association.

NBIA. (1997). *Business Incubation Works*. Athens, OH: NBIA Publications, National Business Incubation Association.

Neumark D, Wall B, & Zhang J. (2011). Do small businesses create more jobs? New evidence for the United States from the National Establishment Time Series. *The Review of Economics and Statistics, 93*(1), 16-29.

ODOC. (2015). *Oklahoma Small Business Incubator Certification Program 2015 Annual Report*. Oklahoma City, OK: Oklahoma Department of Commerce.

OECD. (1999). *Stimulating private enterprise in transition economies. OECD observer policy brief.* Washington, DC: Organization for Economic Co-operation and Development.

Piazza-Georgi, B. (2002). The role of human and social capital in growth: Extending our understanding. *Cambridge Journal of Economics, 26*(4), 461-479.

Schultz, T. W. (1971). *Investment in human capital: The role of education and of research.* New York, NY: The Free Press.

Schultz, T. W. (1993). The economic importance of human capital in modernization. *Educational Economics, 1*(1), 13-19.