

Boon or Boondoggle?
Business Incubation as Entrepreneurship Policy
A Report from the National Census of Business Incubators and their
Tenants

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Introduction

Since the 1980s, communities across the U.S. have seized on promoting entrepreneurship as a key to driving potential future economic growth. The explosive growth of business incubators—institutions that provide subsidized space and management support to new ventures—from 12 in 1980 to more than 1,400 today reflect the nation's unyielding interest in entrepreneurship (Knopp, 2007)². Incubators thrive because of the underlying belief that they select and nurture good business ideas that generate new companies, jobs, and local economic development. But do they? Are all incubators equal in their results? Incubators are one of many policy response tools for encouraging entrepreneurship and thus it is important to study them closely to determine under which circumstances they appear most effective.

Research on business incubation is scant, especially peer-reviewed studies that empirically evaluate the impact of business incubation on new venture performance. The lack of scholarly attention to this question can be attributed in part to the difficulty of gathering sufficient longitudinal data on incubated and unincubated businesses to determine whether business incubation works. Furthermore, the incubator is a relatively new and quickly-morphing organizational form. These challenges have left the incubation industry and important government agencies on their own to study and determine the effects of incubation on firm performance and economic growth. While their efforts have produced important descriptive studies, they have not succeeded in producing statistically valid and generalizable results on the economic impact of business incubators.

² In this study I defined a business incubator as a facility that offers adaptable space at reduced rates that new businesses can lease on flexible terms. The incubator provides business support services that tenants share. Types of services may include financial, management, technical, and administrative. (Kuratko & LaFollette, 1987; Sherman & Chappell, 1998). An incubator is distinct from other business development programs such as accelerators and virtual incubators which may only offer business consulting and training but not operating space. In addition, the census was only able to identify incubated businesses that happened to be residing at an incubator in the months of January and February of each calendar year.

Among the most cited studies on this topic is *Business Incubation Works* by Molnar *et al.* and published by the National Business Incubation Association (NBIA) in 1997. This study on the impact of business incubators on local economic growth and new venture performance found that for every \$1 of public funding received by an incubator, its tenants and former tenants generate approximately \$4.96 in local tax revenue (Molnar, 1997). While this finding is noteworthy, the methods employed to estimate this and other findings in the publication raise doubts about their validity and generalizability since many of its estimates relied on a non-random sample of 23 businesses that had been incubated by four incubators.

The National Census of Business Incubators and their Tenants was begun in order to shed light on the effectiveness of business incubators in raising new venture performance. It began with building a comprehensive dataset of business incubators and their incubated tenants in the United States spanning the period from 1990 to 2008. Additionally, for research purposes, a dataset of unincubated businesses was selected from a national database of all private businesses that were matched to represent the distribution of industry and demographic attributes of incubated businesses. Creation of the matched database allowed for the evaluation of performance outcomes due to the impact of specific treatments or assets such as business incubation on those firms belonging to the group of incubated firms being studied. Thus, this unique dataset was analyzed to investigate whether incubated businesses outperformed their unincubated counterparts in terms of survival, employment growth, and sales growth. In addition, the dataset was used to investigate whether certain attributes of business incubators were associated with better tenant performance.

This research note walks through the data collection process, analytical methods used to study the performance of incubated businesses, and highlights key findings from the National Census of Business Incubators and their Tenants.

Data Collection

Three datasets had to be created for the National Census of Business Incubators and their Tenants: 1) a database of business incubators, 2) a database of businesses incubated at business incubators, and 3) a comparison group of businesses not incubated.

Business Incubators

To ensure that this dataset represented the variety of incubation programs across the U.S., I began by conducting a national census of active business incubators during 2007 and 2009. Identification of business incubation programs relied heavily on membership rosters from the NBIA and resource lists found on websites of economic development divisions of state and local governments. Additionally, several national and longitudinal databases on nonprofit organizations were used to identify missed business incubators that existed between 1990 and 2009. The census revealed 950 business incubators that operated out of 1,100 unique locations. Furthermore, each business incubator was researched using several online tools to determine its incorporation as a nonprofit or for-profit corporation, past and current addresses, founding year, and affiliation with an institution of higher education.

Businesses at Incubators

To overcome challenges in obtaining historical data on successful and closed incubated business, business microdata was obtained from the National Establishment Time-Series Database (NETS) provided by Walls & Associates. The NETS is a longitudinal dataset that

tracks more than 36.5 million business establishments' name, address, birth, relocations, industry, employment, annual sales, and legal status on an annual basis beginning in 1990 (Walls, 2009). By using an address matching query that checked every known address from the census of business incubators with every known address of each business tracked by NETS, 18,500 businesses were identified with a high likelihood of having been incubated.

To assess the accuracy of the address matching process in identifying all former and current tenants of business incubators, a random sample of 65 incubators and their matched tenants (1,200 firms) was pulled from the sample of businesses that were likely incubated. These 65 incubators were surveyed via e-mail and asked to report which of the listed firms were current or former tenants. The survey generated a 49% response rate and revealed that over 80% of the listed firms were current or former tenants.

To investigate the accuracy of responses, several techniques were used to uncover systematic errors in reporting. When incubators reported businesses as not having been tenants, an effort was made to call some businesses directly to verify past incubation status. This revealed that in many cases the incubator respondent had misidentified former tenants as not being affiliated with the incubator, especially if the tenant had exited the incubator several years ago or the incubator official had not been employed by the incubator for long. In other cases, businesses reported as non-tenants were actually found to have been incubated by using the Internet Archive which made it possible to review an incubator's list of tenants and online newsletters beginning in 1996.³ Thus, due to the high level of reporting inaccuracies in the incubator survey, there is strong evidence to believe that actual accuracy of the address matching strategy in identifying an incubator's current and former tenants was much higher than 80%. The verification process

³ It should also be noted that there were no cases where an incubator reported a business to have been a tenant and verification efforts later found that business to not have been a tenant.

uncovered that relying on business incubator staff to provide accurate accounts of their current and former tenants introduces systemic bias.

Thus, the results of the national census of business incubators and the address matching strategy to identify a population of incubated business led me to conclude that the NETS data was sufficient to undertake rigorous analysis of the effectiveness of business incubators in raising tenant performance. The census succeeded in capturing the majority of business incubators especially the population of incubators created after 1990 because it is after this period that the electronic archival methods used were most appropriate. In addition, it is known that the accuracy of the NETS data is most reliable after 1990 due to major improvements in the processes used to collect data (Neumark, Zhang, & Wall, 2005).

Comparison Group

To investigate whether incubated businesses outperform their unincubated counterparts, the study relied on experimental methods where the performance of incubated businesses could be compared with the performance of unincubated businesses (Rosenbaum, 2002). Because it is impossible to simultaneously observe the outcome of the same firm under incubation and without incubation and because it was unfeasible to randomize placement of new ventures into incubation programs, I designed a matching procedure to identify a valid control group of unincubated businesses (Caliendo & Kopeinig, 2008). The matching procedure assumed that matching incubated and unincubated firms on characteristics such as year founded, industry, county, and gender and racial/ethnic identity of the entrepreneur would result in two groups with similar attributes (Rosenbaum, 2002).

Candidates for matching were firms tracked in the NETS that were incorporated as for-profits and which did not reside in one of the addresses where incubators had been in existence.

For each incubated business, seven unincubated businesses for comparison were drawn at random from the NETS.

DESCRIPTIVE STATISTICS ON BUSINESS INCUBATORS

To provide a context for an analysis of business incubation in the United States, it is important to have a good understanding of trends within the industry geographically and over time. Table 1 ranks each state and the District of Columbia based on a count of business incubator locations. The five U.S. states with the largest number of business incubators are California, New York, Texas, Florida, and North Carolina. From 1990 to 2008, California hosted almost 12% of all the business incubators that have existed in the nation, while New York, the state with the second largest number of incubators, hosted almost 8%.

Turning to the founding of business incubators themselves, Figure 1 presents a histogram of the creation of business incubators by year. Prior to 1980, the population of business incubators had not reached 25 nationally; however, between 1980 and 2000, the business incubation industry grew steadily. The creation of business incubators peaked at almost 150 new incubators per year in 2000. Over the course of the last two decades, 1,100 incubators are identified as having existed in the U.S. The majority of incubators incorporate as nonprofits; they represent 80% of the population. However, beginning in the 1990s, for-profit incubators became much more common, accounting for almost 20% of new incorporations by the end of 2008.

Universities have also played an increasingly important part in the evolution of the business incubation industry. University-sponsored incubators total 264 or approximately 27% of the active incubator population and the majority of them are incorporated as nonprofit organizations. Note that the growth in university-sponsored incubators occurred mostly in the

last decade and is likely tied to the growing role that universities and their technology transfer offices are playing in commercializing new technologies and in regional economic development. Additionally, university-sponsored incubators span all levels of higher education, including community colleges and technical institutes. Furthermore, university-sponsored incubators do not focus solely on commercializing faculty research. Many of them also emphasize student-run businesses and offer space to local entrepreneurs.

DESCRIPTIVE STATISTICS ON INCUBATED BUSINESSES

Turning now to the actual businesses served by incubators, of the 18,500 incubated businesses in the dataset, the majority were founded after 2001 (see Table 2). In addition, Table 2 shows that 7,665 or approximately 42%, of incubated businesses had closed by 2008⁴. A large number of incubated businesses closed in 2004 and 2005, perhaps reflecting the lagged end of the dot com boom. The timing of firm closures and the percentage of firm closures is similar in the control group, too.

Most incubated businesses first begin operating inside an incubator. Table 3 shows that 13,678 of the incubated businesses, or approximately 72% of the sample, were born inside the incubator. A much smaller group of 5,338 firms first emerged in a location outside the incubator. Thus, it appears that most incubators recruit nascent entrepreneurs—individuals just beginning the business planning process—to fill their space, rather than seeking out fledging firms and enticing them to relocate.

Tenant graduation rates are a key measure of performance tracked by business incubators since they reflect whether incubators are efficiently turning struggling businesses into

⁴ Closure could mean they simply terminated business activities, went bankrupt, or many other possibilities. In theory, NETS should capture business acquisitions if they were purchased; however, the accuracy of acquisition data is less tested in the data set.

independent and stable companies. According to NBIA, business incubators should aim to have a tenant graduate from the incubator after 3 to 5 years of services. Table 4 shows that, in fact, few incubated businesses ever leave an incubator. Out of 18,426 incubated businesses, only 2.9% or 527 firms exited the incubator. Of those 17% or 90 of the graduate firms closed after exiting the incubation. This indicates that incubators struggle to help their tenants build the capacity necessary to survive in the amount of time being specified by the NBIA.

Looking at the relocation patterns of the incubated businesses and control group, it is noticeable that unincubated businesses relocate at a higher rate than their incubated counterparts do. A total of 1,964 or 7% of the control group relocated during the period of observation. However, their rates of failure after relocation are similar to those of incubated businesses.

A look the industry composition of incubated businesses reveals that most of them compete in services sector. Table 5 shows that almost 60% of incubated businesses provide services. A much smaller group of incubated businesses comes from the financial, insurance, and real estate services industries.

Overall, the data show that there has been rapid growth in the number of business incubators beginning in the mid-1990s. This growth occurred in two major spurts: first, during the dot com boom and then after 2000 when universities began expanding their technology transfer and economic development infrastructure. Furthermore, incubated firms and the control group share many similarities especially regarding firm closures. A surprising finding is the low level of incubated firms that exit the incubator, signaling that incubators find it difficult to wean their tenants out of the protective environment of the incubator.

Key Research Findings on Incubated Businesses

While much of the analysis and research from this work will continue over the coming years, I have begun to explore several important questions with implications for how regional economic development, entrepreneurs, and universities may consider working with an incubator. Overall, this study found that the effect of incubation on the performance of incubated businesses is marginal when compared with the performance of unincubated businesses. In other words, incubation is not associated with a major increase in the survival, employment growth, or sales growth of new ventures on average. However, when the traits of the incubator and the entrepreneur were associated with the performance of incubated businesses, the evidence suggests that some types of incubators may have significant measurable impacts on the businesses with which they work.⁵

Do Incubated Businesses Outperform Unincubated Businesses?

A major assumption made by the incubation industry and policymakers is that incubation helps vulnerable start-ups avoid failure and grow. This study found differing outcomes related to failure and growth. The claim that incubation helps new ventures avoid failure seems overstated. Figure 2 illustrates survival rates of three subgroups— incubated firms that did not graduate, incubated firms that graduated out of the incubation, and the control group—and shows that the survival rates of the incubated groups is marginally lower than that of their unincubated counterparts.

However, when looking at the effect of incubation on employment growth and sales growth, more positive effects appear. In contrast to the survival rates, the employment growth analysis revealed that when new ventures enter an incubator their overall employment growth

⁵ There are many attributes of recruited entrepreneurs and their businesses that for lack of data I am not able to control. However, the statistical tools employed were able to mitigate the bias generated by these data limitations.

increases by 3.5 percentage points. Additionally, when an incubated business graduates out the incubator, its employment growth rate increases by 6.7 percentage points.

The analysis on the effect of incubation on sales growth generated similar results as the employment growth analysis. When a new venture begins incubation its sales growth rate increases by 2.15 percentage points. Furthermore, when an incubated business graduates out of the incubator, its sales growth rate increases by 5.1 percentage points compared to the control group.

Thus, incubated businesses have slightly lower survival rates than their unincubated counterparts while also having slightly higher employment growth and sales growth rates than their unincubated counterparts. These effects while statistically relevant do not offer compelling evidence on whether incubation programs as a whole should continue being expanded. Furthermore, the finding that incubated firms exit the market sooner than their unincubated counterparts may indicate that business incubators are more effective at helping entrepreneurs cut their losses from a failing venture than the market as a whole. Incubation may speed up recognition of when a new venture is truly not going to be a successful venture.

WHICH TRAITS OF BUSINESS INCUBATORS AND ENTREPRENEURS ARE ASSOCIATED WITH HIGHER LEVELS OF ECONOMIC PERFORMANCE?

Because of the proliferation of incubation programs being implemented without a central funding entity driving their structure, there is significant diversity in the configuration and operations of business incubators. To understand how attributes of business incubators and entrepreneurs affected the performance of incubated businesses, a second study focusing only on the sample of incubated businesses was conducted. Using estimation methods that control for the

unique behavior of each incubator and its affiliated tenants, this study sought to uncover the drivers of differential tenant outcomes due to common shared traits across incubators.

Controlling for the affiliation of an incubator with a university or institution of higher education, incubated businesses in university-sponsored incubators perform better than incubated businesses in incubators not sponsored by a university. Their likelihood of failure is 17% lower than the tenants of incubators not sponsored by a university. Furthermore, tenants of university-sponsored incubators experience employment growth that is 370% higher than that of firms incubated in incubators not sponsored by a university. In addition, sales growth among tenants of university-sponsored incubators is more than 200% higher than that of incubators not sponsored by a university. Essentially, the study found overwhelming evidence that an incubated business residing in a university-sponsored incubator experienced higher levels of performance than its counterparts in incubators not sponsored by a university.⁶

Focusing on the effect of an incubator's nonprofit or for-profit legal structure status on its tenant performance, the study found no statistical evidence that incubated businesses in for-profit incubators are more likely to survive than incubated businesses in nonprofit incubators. However, when performance is measured as employment growth and sales growth, incubated businesses in for-profit incubators fare better. Specifically, incubated businesses in nonprofit incubators have employment growth rates that are 200% less than those of incubated businesses in for-profit incubators. Similarly, incubated businesses in nonprofit incubators experience sales growth that is approximately 130% lower than that of tenants of for-profit incubators. More research needs to be done to understand this result as these findings could imply that for-profit

⁶ Note that university-sponsored incubators represent a large subsector of business incubators that are sponsored by research and teaching institutions of higher education and by for-profit and nonprofit institutions of higher education. The study cannot distinguish whether the cause for this higher level of performance is due to intellectual property such as patents owned by the entrepreneur or the educational attainment of the entrepreneur.

incubators are better incubators or that perhaps incubated businesses in nonprofit incubators are different in their growth aspirations, industry composition, and ability in comparison to tenants of for-profit incubators.

Gender is a key attribute of the entrepreneur which prior research shows to have consistent differential outcomes in new venture performance. Specifically, past research has found that women-owned businesses tend to underperform in comparison to their men owned counterparts (Fairlie & Robb, 2008; Shane, 2008). When analyzing the data by gender, the study found that women-owned firms in incubation fare much better than their men-owned counterparts. The likelihood of failure for incubated women-owned businesses is 38% less than that of men owned businesses. Additionally, women-owned incubated businesses have an employment growth level and a sales growth level that is 8% higher than that of men owned firms. In other words, women-owned incubated businesses fail less often and grow more while in incubation than men-owned businesses in incubation.⁷

Conclusion

After decades of growth in the business incubation industry, stemming from private and federal, state, and local government investments in business incubation programs, the National Census of Business Incubators and their Tenants succeeded in overcoming the problem of collecting reliable data on incubators, their tenants, and a comparable group of unincubated businesses. However, more empirical research is still required to understand fully the economic effect that incubation has on its tenants and the long-term growth prospects of communities.

⁷ The study cannot distinguish whether the cause for this higher level of performance is due to differential self-selection by women into incubators or the services/environment offered by the incubator.

The aim of this research was to evaluate the effect of incubation on the performance of new ventures and to distinguish more promising business incubation models from those that are not generating results. By walking through the key findings of the study, it is hoped that others will be encouraged to participate in the generation of plausible hypotheses for these results and engage in their evaluation through further research.

Graduation Rates

Descriptively the National Census of Business Incubators and their Tenants found that the 950 business incubators identified in this study have incubated approximately 18,500 businesses between 1990 and 2008. Because it is known that about half of new businesses are likely to close in their first 5 years, it is not surprising that incubated businesses and unincubated businesses share similar closure rates. However, a surprising finding that will require additional research to further explain are the extremely low graduation rates of incubated businesses. By looking at the relocation patterns of incubated businesses, it was determined that only 2.9% of tenants of business incubators are ever weaned off the assistance and subsidies offered by business incubators.

This finding raises accountability concerns, since incubated businesses that never graduate are essentially receiving a subsidy that benefits the entrepreneur. Incubator space filled by non-graduating businesses excludes other worthy entrepreneurs from accessing a valued service. Additionally, the finances received by business incubators could perhaps be better placed into other more worthy economic development projects. To better understand the implications of this finding, more research should be done to determine if incubators with high graduation rates are delivering services differently and if there are qualitative differences between non-graduating and graduating tenants. Finally, more economic analysis at the regional

level should be conducted to understand whether poor graduation rates are tied to the character of a community's economic activity.

Growth and Survival Effects

When the performance of incubated firms was compared with a control group of unincubated firms, the National Census of Business Incubators and their Tenants found marginal benefits due to incubation. The study does raise doubts about the assumed effectiveness of business incubation. Despite weaknesses embodied in this study, it is unlikely that it failed to uncover other large positive effects of incubation. The breadth of the data, the multiple relevant measures of firm performance, and the rigor of analytical techniques were extensively vetted to generate robust and generalizable findings.

With this caveat in mind, it was noteworthy to find that incubation raises the growth levels of firms in terms of sales and employment. Entrepreneurs most value sales growth because revenues sustain their operations, while policymakers value employment growth because it satisfies a public need. However, the levels of growth, which range between 2% and 7%, among incubated businesses in comparison to unincubated businesses is not dramatic. Given the large investments made to build and operate business incubators, is an increased rate of growth that is less than 10% among tenants of business incubators sufficient? Perhaps the low levels of growth rest on the industries that incubated firms belong to. Or perhaps the low levels of growth are due to traits of entrepreneurs that this study was not able to capture. In any case, more research is needed to understand which kinds of firms benefit most from incubation and could be poised for higher levels of growth.

When examining survival rates among incubated businesses, the growth seen among them in comparison to their unincubated counterparts becomes less noteworthy. It is sobering to

find that incubated businesses have lower survival rates than their unincubated counterparts. Incubated businesses that grow only to close sooner than had they not been incubated reduces the impact of business incubation to economic development. A question that these two findings motivate is whether incubated firms are growing too soon due to the counseling that they are receiving from business incubators? Incubators, as programs that receive public funding and attract local press, need to justify their existence. Perhaps among too many incubators the pressure to demonstrate success is leading them to bias their tenants towards unsustainable growth. Another question that these two findings raise is whether the growth seen among incubated businesses is due to the operating subsidies and low rents that tenants benefit from?

While these findings are unexpected, they do not need to imply that incubation is bad policy. Further research is certainly needed to make better policy decisions about the direction business incubator programs should take. An alternative explanation to the results may lie in the signaling and guidance that incubated businesses receive under close monitoring in an incubator. The quantity and quality of feedback that business incubators provide to their tenants may speed up decision making that then weeds out failing incubated businesses much sooner than the market would. In other words, an incubator may actually be lowering potential losses to an entrepreneur because in an incubator environment the entrepreneur is able to recognize insurmountable risks much sooner and go out of business than had the entrepreneur not been incubated. However, what this alternative explanation does not offer is a hypothesis to why surviving tenants do not graduate out of the incubator.

Opportunities to Improve Incubation Outcomes

The second study looked at how the traits of business incubators and the entrepreneurs were associated with the performance of incubated businesses. The findings revealed that incubated businesses in incubators sponsored by universities generally are better off than their counterparts in non-university-sponsored incubators. These findings coincide with other research showing that universities and communities with higher levels of research production generate higher economic growth (Audretsch, Keilbach, & Lehmann, 2006). Given that university-sponsored incubators represent 27% of the incubator population, proactive measures to increase collaboration between incubators and universities may lead to better performance for the business incubation industry and their tenants in the long-run.

Most noteworthy about this finding is that university sponsored incubators represent a large subsector of business incubators that are sponsored by research and teaching institutions of higher education and by for-profit and nonprofit institutions of higher education. Additionally, these incubators exist for many purposes: to commercialize research, teach entrepreneurship to students, or help revitalize surrounding neighborhoods. Because the study did not distinguish whether the cause for this higher level of performance is due to intellectual property such as patents owned by the entrepreneur or the educational attainment of the entrepreneur, more research to control various dimensions of university communities is needed. When examining the effect of nonprofit or for-profit legal structure on the performance of tenants, the study found tenants of nonprofit incubators have employment growth and sales growth rates that are 200% and 130% lower respectively, than for-profit tenants. Qualitative studies on business incubators have noticed that nonprofit and for-profit incubators differ in their selection practices and operating goals. A possible explanation for the findings is that nonprofit incubators select tenants where the entrepreneur is less experienced and the new venture is of higher risk. Further study is

required to determine what challenges nonprofit incubators and their tenants face. Additionally, this finding implies that the incubation industry may be able to raise the performance of its programs by adopting practices of for-profit incubators or expanding the population of for-profit incubators, since for-profit incubators make up less than 20% of the incubator population.

Another promising finding is the role played by gender in the process of incubation. When looking at how the gender of the entrepreneur was associated with the performance of incubated firms, the study found that women-owned firms benefit tremendously from incubation. They are 38% less likely to fail in comparison to men-owned firms and experience sales and employment growth rates that are 8% higher than those of men-owned firms. Further research is needed to identify the reasons why women-owned firms thrive in incubation in comparison to their male counterparts. Additionally, this finding points to another strategy that business incubators may adopt to improve on their past performance. Given that women entrepreneurs respond positively to incubation services, incubators may attempt to increase the percentage of women-owned firms that they incubate. Based on the sample of firms in this study, women-owned firms comprise only 8% of the firms incubated nationally. There is certainly more work that incubators could do to attract and support women-owned enterprises.

Overall, this study and the National Census of Business Incubators and their Tenants contribute to the business incubation industry and to scholarship on entrepreneurship policy by assessing the effectiveness of business incubators. As local, state, and federal governments look for policy solutions to stimulate economic growth and prevent the decline of once-prosperous communities, they are turning to entrepreneurship. Yet, for too long, government leaders and communities have earnestly assumed that all business incubation works. This study raises doubts about the assumed effectiveness of different business incubation models and implementations.

The scholarly and public policy community needs to invest more resources to learn what leads to successful design, implementation, and ongoing management of business incubators and similar types of entrepreneurship programs. At the macro level, the benefits of entrepreneurship to economic growth are well detailed (Acs & Armington, 2006; Audretsch, Keilbach *et al.*, 2006). What's missing are well-designed studies of a qualitative and quantitative nature that shed light on what is necessary to raise the performance of entrepreneurship programs and policies at the local level.

The existing analysis of the National Census of Business Incubators and their Tenants fills some of these gaps in knowledge, but the work is not complete. In the future, scholars should look at questions such as:

- Does industry clustering and specialization within incubators lead to stronger tenant performance?
- Does the industry of an incubated firm determine whether it exits the incubator successfully?
- Why are women-owned firms more successful than men-owned firms?
- How do local economic conditions such as poverty, education levels, and industry concentration affect the effectiveness of an incubator program?
- What do failed incubated entrepreneurs learn from having been incubated? Specifically, what benefits—financial, professionally, and personally— if any benefits were they able to capture from having been incubated?

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Table 1: Total Count of Business Incubators per State

STATE	Freq.	Percent	STATE	Freq.	Percent
CA	117	11.78	TN	13	1.31
NY	76	7.65	VT	11	1.11
TX	46	4.63	ID	10	1.01
FL	44	4.43	OR	10	1.01
NC	39	3.93	NM	9	0.91
OH	39	3.93	SC	9	0.91
WI	38	3.83	WV	9	0.91
GA	35	3.52	KY	8	0.81
PA	35	3.52	CT	6	0.6
VA	34	3.42	IA	6	0.6
MI	32	3.22	ME	6	0.6
OK	31	3.12	AR	5	0.5
IN	30	3.02	MT	5	0.5
MN	29	2.92	NE	5	0.5
WA	26	2.62	SD	5	0.5
LA	25	2.52	AZ	4	0.4
MA	25	2.52	DE	4	0.4
MD	24	2.42	HI	4	0.4
IL	20	2.01	RI	4	0.4
MO	20	2.01	UT	4	0.4
AL	19	1.91	DC	3	0.3
CO	16	1.61	NH	3	0.3
MS	15	1.51	NV	3	0.3
KS	14	1.41	AK	2	0.2
NJ	14	1.41	ND	2	0.2
<i>Column Total</i>	<i>843</i>	<i>84.87</i>	<i>Column Total</i>	<i>150</i>	<i>15.08</i>
			<i>Grand Total</i>	<i>993</i>	<i>100</i>

Table 2: Births and Failures of Incubated Firms and Control Group

Year	Tenant Births	% of Births	Tenant Failure	% of Failures	Control Group Births	% of Births	Control Group Failures	% of Failures
1990	211	1%	-	0%	467	2%	-	0%
1991	241	1%	-	0%	510	2%	-	0%
1992	460	2%	10	0%	982	3%	9	0%
1993	426	2%	67	1%	630	2%	122	1%
1994	800	4%	105	1%	1,313	5%	227	2%
1995	633	3%	200	3%	1,074	4%	425	3%
1996	1,082	6%	320	4%	1,679	6%	576	5%
1997	946	5%	369	5%	1,580	6%	596	5%
1998	936	5%	468	6%	1,281	5%	798	7%
1999	874	5%	573	7%	1,094	4%	902	7%
2000	1,175	6%	467	6%	1,631	6%	752	6%
2001	1,742	9%	592	8%	2,840	10%	798	7%
2002	2,082	11%	551	7%	3,225	11%	932	8%
2003	1,310	7%	656	9%	1,796	6%	994	8%
2004	1,669	9%	816	11%	2,291	8%	1,247	10%
2005	2,272	12%	1,194	16%	3,414	12%	1,790	15%
2006	1,567	9%	695	9%	2,539	9%	1,111	9%
2007	-	0%	582	8%	-	0%	944	8%
2008	-	0%	-	0%	-	0%	-	0%
Total	18,426	100%	7,665	42%	28,346	100%	12,223	43%

Table 3: First Location of Incubated Firms

Year	Births	Born Elsewhere	Born in Incubated
1990	218	89	129
1991	253	95	158
1992	481	169	312
1993	432	169	263
1994	817	362	455
1995	645	284	361
1996	1,101	521	580
1997	958	423	535
1998	954	419	535
1999	901	353	548
2000	1,191	412	779
2001	1,777	490	1,287
2002	2,111	572	1,539
2003	1,339	295	1,044
2004	1,806	310	1,496
2005	2,396	283	2,113
2006	1,636	92	1,544
Total	19,016	5,338	13,678

Table 4: Survival of Incubated Firms Post-Incubation & Control Group after Last Relocation

Year	Incubated Businesses				Control Group			
	Graduate	Failed	Survived	% Fail	Last Relocation	Failed	Survive	% Fail
1991	0	0	0	0	1	0	1	0%
1992	0	0	0	0	3	0	3	0%
1993	8	0	8	0%	23	0	23	0%
1994	8	0	8	0%	31	1	30	3%
1995	12	4	8	33%	42	8	34	19%
1996	11	4	7	36%	38	16	22	42%
1997	35	2	33	6%	67	17	50	25%
1998	28	7	21	25%	81	27	54	33%
1999	21	12	9	57%	76	41	35	54%
2000	27	7	20	26%	84	39	45	46%
2001	20	7	13	35%	155	37	118	24%
2002	22	7	15	32%	156	31	125	20%
2003	23	8	15	35%	252	46	206	18%
2004	25	7	18	28%	259	44	215	17%
2005	24	10	14	42%	206	34	172	17%
2006	16	10	6	63%	259	30	229	12%
2007	247	5	242	2%	231	19	212	8%
Total	527	90	437	17%	1964	390	1574	20%

Table 5: Industry Distribution

Industry	Incubated Firms		Control Group	
	Count	Percent	Count	Percent
Services	10,885	59%	16,268	57%
Finance, Insurance, and Real Estate	2,042	11%	3,165	11%
Retail Trade	1,456	8%	2,562	9%
Manufacturing	1,381	7%	2,240	8%
Wholesale Trade	1,085	6%	1,571	6%
Utilities & Transportation	771	4%	1,155	4%
Construction	642	3%	1,074	4%
Agriculture, Forestry, and Fishing	114	1%	227	1%
Miscellaneous	35	0.19%	60	0.21%
Mining	15	0.08%	24	0.08%
Total	18,426		28,346	

Figure 1

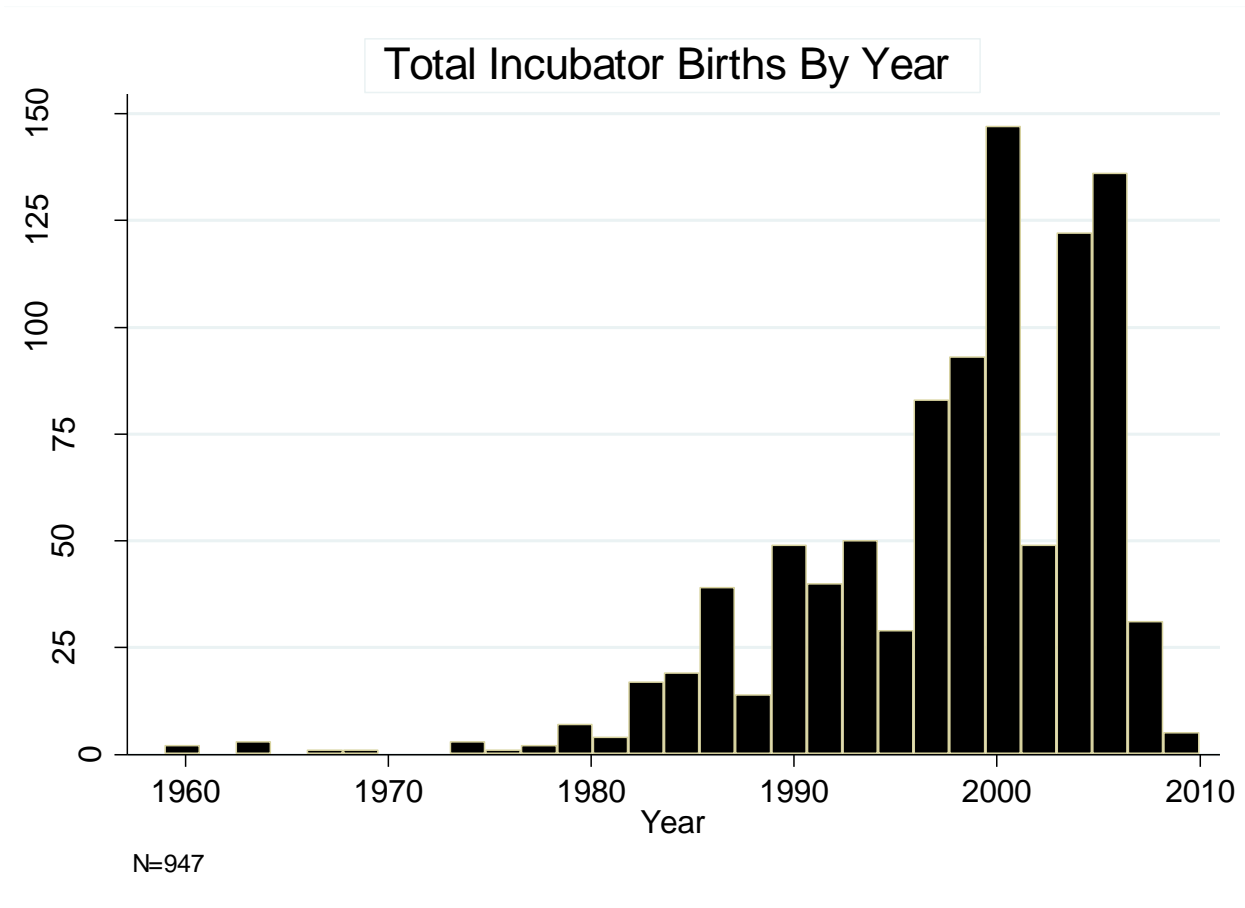


Figure 2

