The Innovation-Entrepreneurship NEXUS

A National Assessment of Entrepreneurship and Regional Economic Growth and Development

by

Advanced Research Technologies, LLC
Powell, OH

for

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and

Edward Lowe Foundation

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The Innovation-Entrepreneurship NEXUS: A National Assessment of Entrepreneurship and Regional Economic Growth and Development

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Purpose

The connection between innovation and entrepreneurship as drivers of local economic development is often discussed but not often studied. This research addresses the needs of local policymakers to understand the role of entrepreneurship and innovation in creating an environment where local economic growth can thrive.

Overall Findings

Both entrepreneurship (new firms and growing firms) and innovation (patents, R&D, and hi-tech industries) are drivers in the growth of regional economies. This study infers that innovative regions need entrepreneurship to more fully develop local economies. Entrepreneurial regions are likely to be associated with higher levels of technology.

Highlights

• Regional entrepreneurship variation was high from 1990 to 2001. The average number of new firm births per 1,000 labor force participants ranged from 9.2 (Glenwood Springs, CO) to 2.0 (Mansfield, OH) and the average annual rate of change of new firm births ranged from 11.7 percent (Springfield, MA) to -8.3 percent (Hilo, HI).

• Most of the top regions for the entrepreneurship index were in the "non-California" western part of the country while the lowest regions tended to be in the Upper New York/Upper Midwest area. The report contains a complete ranking of individual regions.

• Small and large regions had similar average annual numbers of new firm births (3.3 percent and 3.4 percent, respectively) and percentages of firms growing rapidly (4.0 percent and 4.8 percent, respectively). However, small regions had an average annual change in firm births of -3.6 percent while large regions had a gain of 3.2 percent.

• The most entrepreneurial regions had better local economies from 1990 to 2001 compared to the least entrepreneurial. They had 125 percent higher employment growth, 58 percent higher wage growth and 109 percent higher productivity. This general finding held individually for large, medium and small sized regions but was most pronounced for large regions.

• The most entrepreneurial regions were associated with higher levels of technology. They expended nearly 54 percent more of R&D, recorded 67 percent more patents per labor force participant, had a 63 percent higher percentage of hi-tech establishments and had a 42 percent higher portion of college educated population than the least entrepreneurial regions.

• The most entrepreneurial regions tended away from manufacturing as an economic base, but not necessarily toward service industries. The most and least entrepreneurial regions had 12.3 percent and 18.5 percent of their employment in manufacturing respectively, versus 31.5 percent and 28.5 percent in

services. Over the last 30 years, manufacturing-based regions have struggled economically.

• Econometric models showed regional firm births to be positively correlated with innovation and regional growth (employment, wage and productivity).

• Economic models also showed regional innovation to be positively correlated with regional employment growth.

Scope and Methodology

Indexes were used to rank the 394 regions on their entrepreneurial and innovation activities. The regional entrepreneurship index was composed of the number of new firms per 1,000 labor force participants, average annual change in the number of new firms and the percent of rapidly growing firms. Special tabulations from the U.S. Census Bureau's Statistics of U.S. Business Data program were the source for entrepreneurship data. The regional innovation capacity index was composed of R&D expenditures, number of patents and hi-tech's share of the local economy. The National Science Foundation's Survey of R&D Expenditures, U.S. Patent and Trademark Office and U.S. Bureau of Economic Analysis were sources for innovation data.

Econometric models were also used to evaluate and show a connection among entrepreneurship, innovation, and economic growth. Local employment, wage growth and productivity growth represented local economic development.

The most entrepreneurial regions were defined as regions within the highest quartile and the least were defined as the lowest quartile.

FINTEL, LLC of Madison, Wisconsin assisted with much of the data analysis.

This report was peer-reviewed consistent with Advocacy's data quality guidelines. More information on this process can be obtained by contacting the Director of Economic Research at *advocacy@sba.gov* or (202) 205-6533.

Ordering Information

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Research Partners

This study was designed and conducted by Advanced Research Technologies, LLC of Powell, Ohio. Much of the data analysis was performed in collaboration with FINTEL, LLC of Madison, Wisconsin.

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Executive Summary

The U.S. economy churns within an environment fundamentally changed by technology, global market access and innovation. The structural transformation these changes bring about challenge regions to align their development strategies with the new drivers of economic growth. In today's increasingly competitive markets, the creation of economic value can only be sustained as firms, large and small, young and old, increase their capacity to generate new marketable ideas, rapidly commercialize those ideas and adjust their competitive offering to changing market conditions. This entrepreneurial spirit, whether observed in the creation of new or the growth of established firms, keeps industries vibrant and maintains the health and prosperity of regions.

The *Innovation-Entrepreneurship Nexus* is comprised of independent and corporate efforts to assemble and deploy resources for capturing the value in innovative ideas for new products, services and processes. Importantly, the level of nexus activity in a region is a strong indicator of the region's ability to benefit locally from innovation. Many regions that have made heavy investments in innovation capacity now recognize that entrepreneurship is the primary mechanism for converting early-stage innovations into local economic gain. Consequently, regional development leaders are actively seeking policies and strategies that foster the nexus between innovation and entrepreneurship for their economic development portfolios.

Early adopter regions are already working proactively to develop an entrepreneurial-friendly environment that supports all aspects of this process. However, many others are still focusing their efforts primarily on building the capacity to innovate, which represents only an early stage of the entrepreneurial process. Having made significant investments in innovation capacity with relatively little local economic impact to show, some regions are just now realizing that commercialization is key to capturing the economic value embedded in innovation and that the processes for generating innovations are not the same as those required for their commercialization.

As the results of this assessment will show, innovation without entrepreneurship generally yields minimal local economic impact. The results demonstrate that entrepreneurship enhances the regional economic impact of investments in innovation. Innovations are highly portable, whereas entrepreneurship is place-based. Whether they are building new firms or reinventing existing ones, entrepreneurs, through the application of new ideas to products and services, capture locally the economic benefits of innovation. Developing strategies, policies and programs for leveraging the nexus between innovation and entrepreneurship, therefore, appears to be of vital importance to the competitiveness and vitality of regions.

Though the link between entrepreneurship and economic growth is increasingly recognized, the purpose of this initiative was to clearly define the role of entrepreneurship in innovation-driven economies. Furthermore, this assessment examines the level of entrepreneurship within and across all U.S. regions over time and demonstrates the strong linkages between entrepreneurial activity and regional economic growth. The analysis is focused on four fundamental questions challenging today's regional leaders.

o How much variation is there in the level of entrepreneurship between regions?

o What is the impact of entrepreneurship on regional economic growth and development?

o Does entrepreneurship activity enhance the benefits of investments in technology and innovation-based development?

o Why do some regions realize more entrepreneurship activity than others – what factors drive entrepreneurship activity?

Regional Variation

This initiative explores the role and impact of entrepreneurship on regional economic growth and development for all regions within the U.S. Regions were rank ordered by population and separated into quartiles with the top quartile being large, the bottom quartile being small, and the middle two quartiles being combined to form medium-sized regions. After controlling for size, the findings show that entrepreneurship is present at some level in every region. However, most regions could realize significantly higher levels of entrepreneurship activity by focusing their development efforts on the needs of startup and growing businesses. Some of the most important findings about regional variation in entrepreneurship activity are summarized below.

❑ Entrepreneurs are active in every U.S. region, large and small. As such, entrepreneurship is not the exclusive domain of large, resource-rich communities.

❑ Across the country between 1990 and 2001:

o the average annual number of new firm births for every 1,000 people in the labor force ranges from a high of 9.2 (Glenwood Springs, CO) to a low of 2.0 (Mansfield, OH);

o the average annual rate of change in new firm births during this period ranges from 11.7 percent (Springfield, MA) to -8.3 percent (Hilo, HI); and

o the proportion of young firms that are growing significantly ranges from a high of 8.0 percent (Provo, UT) to a low of 2.3 percent (Hilo, HI).

❑ After controlling for size, there is no significant difference in the average annual number of new firm births (as measured by births per every 1,000 people in the labor force) between small, medium and large regions.

  ○ However, the growth in the average annual number of new firm births in large regions (3.2%) was significantly greater than that of either small or medium regions.

  ○ While the average annual change in the number of new firm births was increasing for large and medium-sized regions, small regions, on average, realized a decrease in the average annual number of new firm births by almost 4 percent.

❑ Given the strong positive relationship between entrepreneurship and regional economic growth, the average annual rate of change in new firm births is a strong measure of a region's sustainable competitive advantage.

❑ The Regional Entrepreneurship Index (REI) is a multifaceted measure that is used to assess the dynamic nature of entrepreneurship within a region. Regions scoring higher on REI are the most active in creating new firms, supporting the survival and growth of those firms, and building strong entrepreneurship support infrastructures.

  ○ Using the REI measure of entrepreneurship capacity and performance, Glenwood Springs, Colorado ranks as the nation's most entrepreneurial region.

Economic Impact

Entrepreneurship is by nature an economic process. The Nexus initiative modeled regional entrepreneurship activity against several select measures of regional economic growth in order to better understand how entrepreneurship activity influences the stability and growth of regional economies. Regression was used to test the impact of entrepreneurship on regional economic growth, while tests for mean differences in key economic outcomes between the most and least entrepreneurial regions were used to demonstrate the significant difference entrepreneurship makes on the growth of regional economies. The findings are summarized below.

❑ After controlling for growth in personal income and the percent of employment in manufacturing, tests show that entrepreneurship is a significant driver of regional economic growth. Using growth in employment, wages, and productivity as proxies for local economic development, the analytical models show that entrepreneurship and innovation are statistically significant and correlated with regional economic development.

❑ When comparing regions with the highest levels of entrepreneurship to those with the lowest levels, the differences in economic growth are compelling.

- ❑ On average, the models find that regions with high levels of entrepreneurship activity realize significantly higher rates of employment, wage and productivity growth.

- ❑ These differences are significant regardless of regional size. In other words, regions of all sizes benefit greatly from increased levels of entrepreneurship activity.

The Innovation-Entrepreneurship Nexus

Despite the recent increase in regional investment in innovation capacity, many regions are learning the expensive lesson that innovation is a necessary but insufficient condition for regional economic growth. As it turns out, much of the impact of innovation on regional economies is due to the enterprising initiatives of local entrepreneurs (independent and corporate). The commercializing activities of local entrepreneurs are necessary to convert a region's innovation assets into long-term economic gain. This assessment measures the direct impact of innovation on regional economies and then measures the mediating effects of entrepreneurship on that relationship. The results, summarized below, suggest that most of the impact of innovation on regional economic growth and development is realized through entrepreneurship.

- ❑ Entrepreneurship effectively mediates the relationship between innovation and regional economic growth. In other words, the return on investments in innovation capacity is greater for regions that are able to support a high level of entrepreneurship activity.

- ❑ Based on multifaceted measures of innovation and entrepreneurship, the five most innovative-entrepreneurial regions in the US are as follows.

  - ○ Fort Collins, CO
  - ○ Raleigh, NC
  - ○ Provo, UT
  - ○ Austin, TX
  - ○ Boston, MA

- ❑ Accessibility to technology through strong local networks is critical to innovation-based economic development. However, approximately 75 percent of small, 59 percent of medium, and 44 percent of large regions are not realizing the level of entrepreneurship activity that their existing innovation capacity will support.

Regional Drivers

The research has shown that regions with higher levels of entrepreneurship activity realize significant competitive economic advantages, regardless of their size.

The critical development question, therefore, is, "What makes a region entrepreneurial?" Findings from other studies have generally confirmed that regions rich in developmental resources realize significantly more entrepreneurship and greater economic growth. These general findings were confirmed in this assessment of cross-regional variation in entrepreneurship activity using standard measures of the availability of technology and managerial talent.

❑ The most entrepreneurial regions possess significantly higher levels of R&D expenditures. These regions expend nearly 54 percent more on R&D than the least entrepreneurial regions.

❑ The average percent of establishments competing in high tech sectors for the most entrepreneurial regions (2.6%) is nearly 63 percent greater than the average for the least entrepreneurial regions (1.6%).

❑ The most entrepreneurial regions possess the highest proportion of the population with a college degree (19.5%). The average for the most entrepreneurial regions is more than 42 percent higher than the average for the least entrepreneurial regions (13.7%).

This assessment also examined several different factors in order to better understand the scope of regional entrepreneurship activity, the availability of development assets and the costs of those assets which indirectly affects the quality, size and momentum of profitable opportunities. The analysis looked at the impact of industry structure and competitive dynamics as measured by technology dominance, technology orientation, the degree to which manufacturing dominates the local economy, and percent of industries that trade outside the local region. The findings for each factor are summarized below.

Technology dominance was measured as the percent of establishments that operate in high technology industries. Technology orientation was measured as the percent of a region's total input/output (I/O) transaction activity that occurs with traditional high technology industries. These are critical factors which, despite their influence on the availability and cost of development resources, have been largely ignored in the study of regional entrepreneurship development.

❑ The percent of establishments in high technology industries for the most entrepreneurial regions (2.6%) is 63 percent greater than that of the least entrepreneurial regions (1.6%).

❑ Regions with high levels of entrepreneurship activity also have significantly higher levels of I/O transaction activity with technology sectors. Resident industries in these regions appear to be more dependent on technology to drive productivity, which, in the long-run, drives regional growth and vitality.

Many regions that are dominated by manufacturing-based industries have realized a steady decline in the level of economic growth in the last 30 years. On the other hand, many of those regions that have made a successful transition to service-based economies have been able to sustain growth during this time.

❑ Regions with the highest levels of entrepreneurship have significantly fewer employees in traditional manufacturing sectors (12.3%) than the least entrepreneurial regions (18.5%).

When compared to local-serving industries, traded industries are generally larger (i.e., more resources), grow faster (i.e., more opportunities), and pay higher average wages (i.e., greater sustained profitability). The added resources, opportunities and profits of traded industries support significantly greater levels of entrepreneurship activity.

❑ In regions with higher levels of entrepreneurship activity the percent of all industries that are traded (26.3%) is significantly higher than in those regions with lower levels of entrepreneurship (22.4%).

❑ Though the percentage difference appears small, it translates into a difference of thousands of jobs. Furthermore, given the accelerated growth and higher than average wages paid by traded industries, the difference means thousands of higher quality jobs.

❑ These benefits hold for regions of all sizes. As such, all regions stand to benefit from accelerating the level of entrepreneurship and enhancing their capacity and performance at the innovation-entrepreneurship nexus.

Regional Variation in Entrepreneurship

The United States is among the most entrepreneurial nations in the world; however, the level of entrepreneurship activity varies considerably from region to region.[1] Regions such as Austin, TX, Raleigh, NC and Boston, MA are known to be highly entrepreneurial, while entrepreneurship is generally underestimated in areas like Kansas City, MO, Savanna, GA, and Boise, ID. Experts agree, however, that, though the United States as a whole is strong entrepreneurially, many regions fail to capitalize on its benefits for strengthening and growing their economies.

Entrepreneurship Activity

The Nexus initiative measures the level of entrepreneurship activity for every region in the United States (see Appendix).[2] Because of the complex nature of entrepreneurship, this project uses multiple metrics to assess a region's entrepreneurship performance and capacity. The specific measures include the average annual number of new firms created, the average annual number of new firm births for every 1,000 people in the labor force, the average annual change in the number of new firm births, and the percent of young firms that are growing successfully.[3]

The number of new firm births is perhaps the most popular measure of entrepreneurship in regional economic research.[4] It is conceptually well understood, relatively easy to measure, and can be easily manipulated to control for regional size. For this analysis, regional size is controlled for by dividing the total number of new firm births by the size of the labor force in each region. The number of new firm births was obtained for each region for each year between 1990 and 2001, and the average annual

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[1] For specific studies of regional variation in entrepreneurship activity, see Reynolds, P. (1994) Autonomous firm dynamics and economic growth in the United States, 1986-1990, *Regional Studies*, 28(4): 429-442; Audretsch, D. and Fritsch, M (1994) The geography of firm births in Germany, Regional Studies, 28(4): 359-365; and Sutaria, V. (2001) *The dynamics of new firm formation*, Ashgate, London.

[2] For this study, regions are defined according to the U.S. Census Bureau's definition of Labor Market Areas. Labor Market Areas were selected because they are constructed from commute-to-work patterns, have a minimum of 100,000 people, are structured along pre-defined county borders, and represent rural and metro regions as well as regions of all sizes. For more information, see Tolbert, C.M. and Sizer, M. (1996) U.S. commuting zones and labor market areas: a 1990 update, Staff Paper No. AGES-9614, Rural Economy Division, Economic Research Service, U.S. Department of Agriculture, Washington, D.C.

[3] The individual measures of entrepreneurship activity (1990-2001) were obtained from the Longitudinal Establishment and Enterprise Microdata (LEEM) file compiled by the U.S. Census Bureau from the microdata underlying its County Business Patterns. For more information, see Armington, C. and Acs, Z.J. (2002) Determinants of regional variation in new firm formation, *Regional Studies*, 36(1): 33-45.

[4] For this assessment, annual firm births are measured as "non-affiliated establishments" with a start year of t or t-1 that had no employment in March of t-1 and had positive employment of less than 500 in t. For more information, see Armington, C. and Acs., Z.J. (2002) Determinants of regional variation in new firm formation, *Regional Studies*, 36(1): 33-45.

number of new firm births for every 1,000 people in the labor force is reported for every region in the Appendix.

The average annual change in the number of new firm births represents the extent to which a region's level of indigenous entrepreneurship is growing or declining and at what rate. If entrepreneurship does positively impact regional economic growth, as experts contend, then a region's ability to accelerate its level of entrepreneurship activity over time can be a particularly effective competitive advantage. Stability in this measure over time reflects a region's ability to sustain its competitive advantage in the creation and growth of new ventures.

The proportion of young firms that are growing (i.e., number of full-time employees) is important to a region's entrepreneurial culture. For this assessment, entrepreneurial growth is measured by the proportion of the new firms launched in 1991 that had grown to more than five employees by 1996. A large pool of young growing firms indicates that the regional infrastructure and entrepreneurial asset base provide an environment where startup firms are more likely to survive the tumultuous startup process and grow to a substantial size. A high number of growing young firms may also indicate that the region's industry structure provides sufficient long-term growth opportunities and that the competitive dynamics are not overly restrictive to market entry.

Tables 1, 2 and 3 provide rankings of the top and bottom 20 regions for each specific measure of entrepreneurship activity respectively. As the tables show, the top regions represent regions of different size and geographical locations. The northwest and southeast regions of the country are most often represented among the top ranked regions for each measure, while the Midwest and north central areas of the country are most often represented in the bottom 20 rankings for each measure.

It is important to note that, regardless of which measure you use, every region has some level of entrepreneurship activity. Across the United States, the average annual number of new firm births for every 1,000 people in the labor force between 1990 and 2001 ranges from a high of 9.2 (Glenwood Springs, CO) to a low of 2.0 (Mansfield, OH) (Table 1). The average annual change in new firm births during this period ranges from 11.7 percent (Springfield, MA) to -8.3 percent (Hilo, HI) (Table 2). The proportion of young firms that are growing successfully ranges from a high of 8.0 percent (Provo, UT) to a low of 2.3 percent (Hilo, HI) (Table 3).

The Regional Entrepreneurship Index

Each of these measures provides an important and distinct look at a region's level of entrepreneurship activity. However, each measure is also limited in its ability, in and of itself, to completely represent a region's underlying entrepreneurial dynamic. For example, a region may be producing a relatively high number of new firms, but the number might be declining over time. Also, a region may be increasing the number of new firms created each year, but the new firms may be entering low growth or stagnant industries where the long-term growth opportunities are limited. The different sets of regions ranked in Tables 1 and 2 is evidence that they reflect different factors.

Table 1: Top and Bottom Twenty Regions: Average Annual New Firm Births per 1,000 Labor Force (1990-2001)

Top 20 Regions	Average Annual New Firm Births per 1000 LF (1990-2001)	Relative Ranking
Glenwood Springs, CO	9.1854	100.0%
Cape Coral, FL	6.9828	99.7%
Bend, OR	6.2576	99.4%
Grand Junction, CO	6.2539	99.2%
West Palm Beach, FL	6.0928	98.9%
Port Angeles, WA	5.8715	98.7%
Miami, FL	5.8555	98.4%
Kalispell, MT	5.8289	98.2%
Cortez, CO	5.6543	97.9%
Sarasota, FL	5.5378	97.7%
Reno, NV	5.3491	97.4%
Rock Springs, WY	5.1948	97.2%
Richfield, UT	5.1646	96.9%
Longview, WA	5.1433	96.6%
Daytona Beach, FL	5.0952	96.4%
Butte-Silver Bow, MT	5.0573	96.1%
Twin Falls, ID	4.9798	95.9%
Ocala, FL	4.9557	95.6%
Wilmington, DE	4.8796	95.4%
Wilmington, NC	4.8607	95.1%
Bottom 20 Regions		
Portsmouth, OH	2.2478	4.8%
Burlington, IA	2.2474	4.5%
Zanesville, OH	2.2405	4.3%
Sunbury, PA	2.2301	4.0%
Mount Pleasant, MI	2.2232	3.8%
Steubenville, OH	2.2214	3.5%
Bloomington, IL	2.2202	3.3%
Marshalltown, IA	2.1987	3.0%
Oneonta, NY	2.1981	2.7%
Kalamazoo, MI	2.1791	2.5%
Dayton, OH	2.1513	2.2%
Kankakee, IL	2.1505	2.0%
Lorain, OH	2.1368	1.7%
Sheboygan, WI	2.1233	1.5%
Binghamton, NY	2.1156	1.2%
Findlay, OH	2.0595	1.0%
Galesburg, IL	2.0558	0.7%
Blytheville, AR	2.0109	0.5%
Elmira, NY	2.0042	0.2%
Mansfield, OH	1.9635	0.0%

Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Table 2: Top and Bottom Twenty Regions: Average Annual Change in New Firm Births (1990-2001)

Top 20 Regions	Average Annual Change in New Firm Births (1990-2001)	Relative Ranking
Springfield, MA	11.7247%	100.0%
Gallup, NM	10.0963%	99.7%
Logan, UT	5.9801%	99.4%
Las Vegas, NV	5.2286%	99.2%
Pocatello, ID	4.8727%	98.9%
Gainesville, GA	4.7971%	98.7%
Provo, UT	4.5446%	98.4%
Corbin, KY	4.4681%	98.2%
Salt Lake City, UT	3.8428%	97.9%
Wilmington, NC	3.8022%	97.7%
Boston, MA	3.7749%	97.4%
Charlotte, NC	3.7465%	97.2%
Glenwood Springs, CO	3.7346%	96.9%
Cleveland, TN	3.6728%	96.6%
Washington, NC	3.5781%	96.4%
Boise City, ID	3.3854%	96.1%
Hattiesburg, MS	3.2296%	95.9%
Raleigh, NC	3.2143%	95.6%
Morganton, NC	3.0947%	95.4%
Hickory, NC	3.0823%	95.1%
Bottom 20 Regions		
Pine Bluff, AR	-2.7928%	4.8%
Lorain, OH	-2.8298%	4.5%
Lafayette, IN	-2.9401%	4.3%
Elmira, NY	-2.9669%	4.0%
Lexington, NE	-2.9958%	3.8%
Worthington, MN	-3.0564%	3.5%
Steubenville, OH	-3.0796%	3.3%
Syracuse, NY	-3.2602%	3.0%
Abilene, TX	-3.3291%	2.7%
Decorah, IA	-3.3421%	2.5%
Saginaw, MI	-3.5245%	2.2%
Bluefield, WV	-3.5996%	2.0%
Amsterdam, NY	-3.7078%	1.7%
Huntington, WV	-3.7659%	1.5%
Oneonta, NY	-3.8684%	1.2%
Chico, CA	-4.0114%	1.0%
Redding, CA	-4.2293%	0.7%
Kirksville, MO	-4.7936%	0.5%
Pikeville, KY	-5.3757%	0.2%
Hilo, HI	-8.2683%	0.0%

Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

In order to compensate for the limitations of any one measure, a more inclusive measure of entrepreneurship was compiled for this assessment called the Regional Entrepreneurship Index (REI). REI was computed as the average of the relative rankings (equally weighted) of the three core metrics: 1) the number of new firm births per 1,000 labor force, 2) growth in the number of new firm births and 3) the proportion of young firms that are growing. The advantage of REI is that it more effectively measures the dynamic nature of entrepreneurship present within a region. In addition, as a relative measure it is effective for conducting comparisons between regions and regional types over time. As a relative ranking, scores range from 100 percent (i.e., the most entrepreneurial region) to 0 percent (i.e., the least entrepreneurial region). Table 4 ranks the top and bottom 20 U.S. regions on REI. Using this measure of entrepreneurship, Glenwood Springs, CO ranks as the nation's most entrepreneurial region.

Differences in Entrepreneurship by Regional Size

Table 5 lists the top 10 regions by size for each measure of entrepreneurship activity, including the combined Regional Entrepreneurship Index. As evident in the Table, a region's entrepreneurship capacity is not simply a matter of size. For some factors, several small and medium-sized regions scored higher than many larger regions. For large regions, the average annual number of new firm births ranges from a high of 6.1 (West Palm Beach, FL) to a low of 2.2 (Dayton, OH). The average annual change in new firm births ranges from 11.7 percent (Springfield, MA) to -3.3 percent (Syracuse, NY). The percent of young firms that are growing ranges from a high of 7.2 percent (Austin, TX) to a low of 3.2 percent (Poughkeepsie, NY). The Regional Entrepreneurship Index (REI) for large regions ranges from a high of 99.7 percent (Las Vegas, NV) to a low of 1.2 percent (Syracuse, NY).

In regions of medium size, the average annual number of new firm births ranges from a high of 7.0 (Cape Coral, FL) to a low of 2.0 (Mansfield, OH). The average annual change in new firm births ranges from 10.1 percent (Gallup, NM) to -5.4 percent (Pikeville, KY). The percent of young firms that are growing ranges from a high of 8.0 percent (Provo, UT) to a low of 2.2 percent (Sunbury, PA). The REI for medium-sized regions ranges from 99.4 percent (Provo, UT) to 0.2 percent (Elmira, NY).

Among all small U.S. regions, the average annual number of new firm births ranges from a high of 9.2 (Glenwood Springs, CO) to a low of 2.0 (Blythville, AR). The average annual change in new firm births ranges from 6.0 percent (Springfield, MA) to -8.3 percent (Hilo, HI). The percent of new firms that are growing ranges from a high of 7.3 percent (Farmington, NM) to a low of 2.3 percent (Hilo, HI). The Regional Entrepreneurship Index for small regions ranges from a high of 100 percent (Glenwood Springs, CO) – the highest in the U.S. – to a low of 0.0 percent (Oneonta, NY) – the lowest in the U.S.

Table 3: Top and Bottom Twenty Regions: Percent of Firms Growing Rapidly (1991-1996)

Top 20 Regions	Percent of Firms Growing Rapidly (1991-1996)	Relative Ranking
Provo, UT	7.9616%	100.0%
Richfield, UT	7.3423%	99.7%
Farmington, NM	7.3171%	99.4%
Austin, TX	7.2388%	99.2%
Phoenix, AZ	7.0641%	98.9%
Fayetteville, AR	6.9241%	98.7%
Salt Lake City, UT	6.9129%	98.4%
Fort Collins, CO	6.7598%	98.2%
Cortez, CO	6.6092%	97.9%
Elkhart, IN	6.5294%	97.7%
Las Vegas, NV	6.5211%	97.4%
Atlanta, GA	6.4652%	97.2%
Glenwood Springs, CO	6.4429%	96.9%
Albuquerque, NM	6.3343%	96.6%
Denver, CO	6.2376%	96.4%
Boise City, ID	6.1811%	96.1%
Colorado Springs, CO	6.1287%	95.9%
Killeen, TX	6.0849%	95.6%
Grand Junction, CO	5.9968%	95.4%
Nashville-Davidson, TN	5.9899%	95.1%
Bottom 20 Regions		
Great Bend, KS	3.1632%	4.8%
Poughkeepsie, NY	3.1619%	4.5%
Grand Island, NE	3.1576%	4.3%
Olney, IL	3.1298%	4.0%
Elmira, NY	3.1226%	3.8%
Galesburg, IL	3.1108%	3.5%
Sterling, CO	3.0576%	3.3%
South Boston, VA	3.0011%	3.0%
Enid, OK	2.9676%	2.7%
Oneonta, NY	2.9564%	2.5%
Plattsburgh, NY	2.9142%	2.2%
Concordia, KS	2.9078%	2.0%
Lexington, NE	2.8617%	1.7%
Blytheville, AR	2.8346%	1.5%
Sunbury, PA	2.8213%	1.2%
Greenville, MS	2.8180%	1.0%
Aberdeen, SD	2.7901%	0.7%
Amsterdam, NY	2.4379%	0.5%
Roanoke Rapids, NC	2.4314%	0.2%
Hilo, HI	2.2939%	0.0%

Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Table 4: Top and Bottom Twenty Regions: Regional Entrepreneurship Index

Top 20 Regions	Average Weighted Ranking	Regional Entrepreneurship Index
Glenwood Springs, CO	97.9333%	100.0%
Las Vegas, NV	96.7333%	99.7%
Provo, UT	96.4667%	99.4%
Logan, UT	95.6667%	99.2%
Wilmington, NC	95.6333%	98.9%
Farmington, NM	95.1667%	98.7%
Bend, OR	94.9333%	98.4%
Richfield, UT	94.7667%	98.2%
Salt Lake City, UT	94.6667%	97.9%
Cortez, CO	93.9333%	97.7%
Boise City, ID	93.4667%	97.4%
Fort Collins, CO	93.3667%	97.2%
Atlanta, GA	93.1000%	96.9%
Butte-Silver Bow, MT	91.7333%	96.6%
Charlotte, NC	91.5000%	96.4%
Reno, NV	91.4667%	96.1%
Raleigh, NC	91.2000%	95.9%
Gainesville, GA	90.8000%	95.6%
Colorado Springs, CO	89.7000%	95.4%
Phoenix, AZ	88.9000%	95.1%
Bottom 20 Regions		
Rochester, MN	13.8333%	4.8%
Olney, IL	13.5000%	4.5%
Burlington, IA	13.4333%	4.3%
Kirksville, MO	12.6000%	4.0%
Williamsport, PA	12.5000%	3.8%
Buffalo, NY	12.1000%	3.5%
Lafayette, IN	11.7333%	3.3%
Mansfield, OH	11.6667%	3.0%
Lexington, NE	11.5667%	2.7%
Albany, NY	11.0667%	2.5%
Huntington, WV	10.5667%	2.2%
Quincy, IL	10.3667%	2.0%
Decorah, IA	9.3667%	1.7%
Blytheville, AR	6.7667%	1.5%
Syracuse, NY	6.0000%	1.2%
Galesburg, IL	5.8000%	1.0%
Steubenville, OH	5.4000%	0.7%
Amsterdam, NY	2.8333%	0.5%
Elmira, NY	2.6667%	0.2%
Oneonta, NY	2.1333%	0.0%

Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

In addition, differences in the averages for these measures across the regional size categories (i.e., large, medium, and small) are not large. Figure 1 portrays the average annual number of new firm births per 1,000 labor force for large, medium and small regions; it is important to note that the differences are not statistically significant. Figure 2 portrays the average percent of young firms that are growing successfully by regional size. Once again, the differences by regional size are not statistically significant.

Figure 1: Average Annual Number of New Firm Births
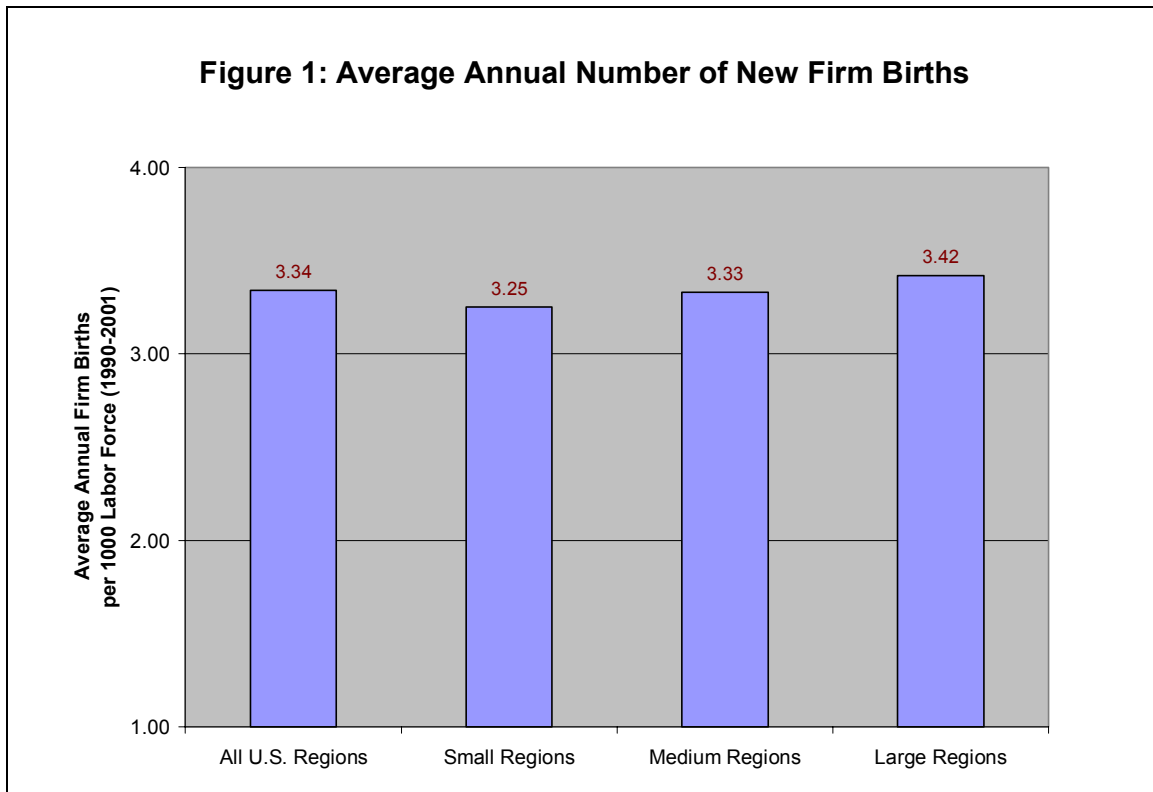
Source: 1990-2001 LEEM data file, U.S. Census Bureau

Differences by regional size are significant when we consider the average annual change in the number of new firms created. Small regions realized an average annual decrease of about 4 percent in the number of new firm births throughout the 1990s (Figure 3). Large regions, on the other hand, realized an average annual increase in the number of firm births of approximately 3 percent during this time. As a result, when we look at the Regional Entrepreneurship Index by regional size (Figure 4), we see that larger regions on average possess a significantly greater entrepreneurial orientation. However, differences are to be expected given the resource and capacity advantages of larger regions.

Figure 2: Percentage of Firms Growing Rapidly

Percentage of Firms
Growing Rapidly
(1996)

- All U.S. Regions: 4.450%
- Small Regions: 4.015%
- Medium Regions: 4.480%
- Large Regions: 4.826%
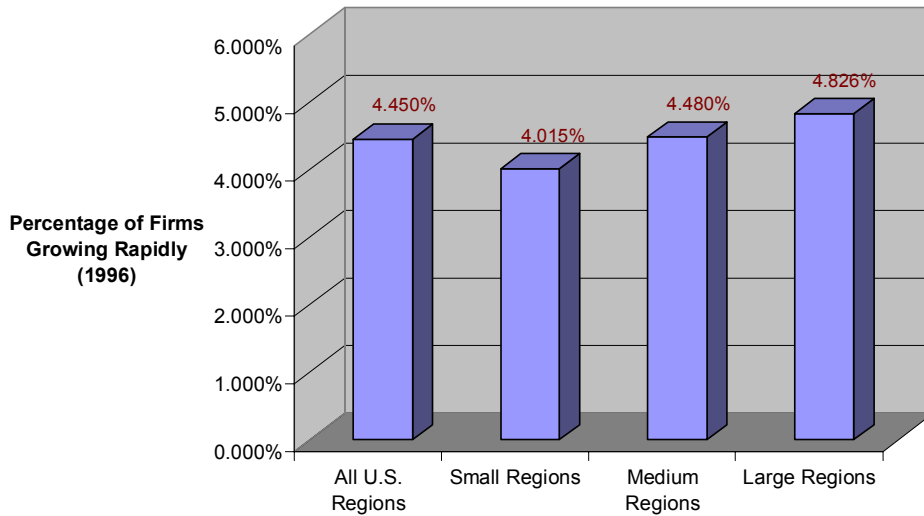
Source: 1990-2001 LEEM data file, U.S. Census Bureau

Figure 3: Average Annual Change in Firm Births
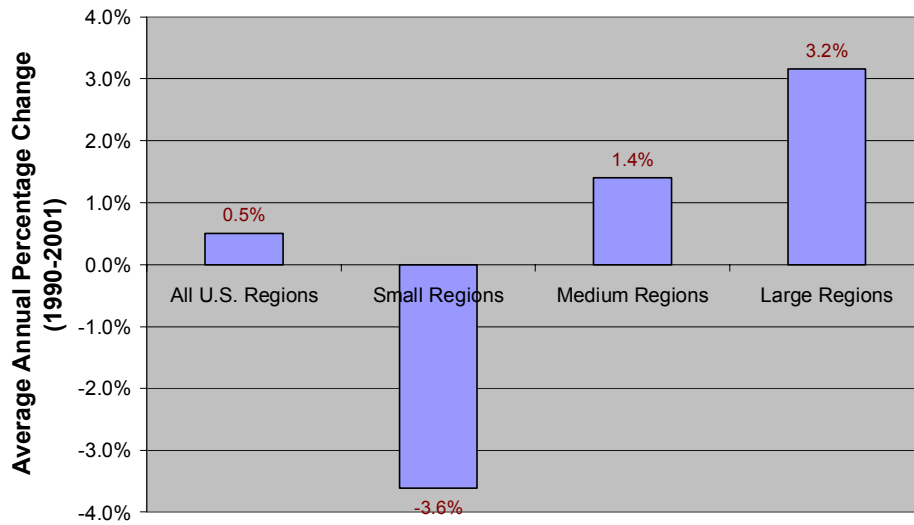
Average Annual Percentage Change
(1990-2001)

- All U.S. Regions: 0.5%
- Small Regions: -3.6%
- Medium Regions: 1.4%
- Large Regions: 3.2%

Source: 1990-2001 LEEM data file, U.S. Census Bureau

Table 5: Top Ten Regions: Comparisons of Entrepreneurship Capacity and Performance by Regional Size

	Top 10 Regions	Average Annual New Firm Births per 1,000 LF (1990-2001)	Top 10 Regions	Average Annual Change in New Firm Births (1990-2001)
LARGE	West Palm Beach, FL	6.09	Springfield, MA	11.72%
	Miami, FL	5.86	Las Vegas, NV	5.23%
	Sarasota, FL	5.54	Salt Lake City, UT	3.84%
	Las Vegas, NV	4.78	Boston, MA	3.77%
	New York, NY	4.62	Charlotte, NC	3.75%
	Springfield, MA	4.59	Raleigh, NC	3.21%
	Denver, CO	4.51	Providence, RI	2.58%
	Orlando, FL	4.41	Atlanta, GA	2.45%
	Atlanta, GA	4.39	New York, NY	2.39%
	Charlotte, NC	4.28	San Diego, CA	2.25%
MEDIUM	Cape Coral, FL	6.98	Gallup, NM	10.10%
	Bend, OR	6.26	Pocatello, ID	4.87%
	Grand Junction, CO	6.25	Gainesville, GA	4.80%
	Port Angeles, WA	5.87	Provo, UT	4.54%
	Kalispell, MT	5.83	Corbin, KY	4.47%
	Cortez, CO	5.65	Wilmington, NC	3.80%
	Reno, NV	5.35	Cleveland, TN	3.67%
	Richfield, UT	5.16	Boise City, ID	3.39%
	Longview, WA	5.14	Morganton, NC	3.09%
	Daytona Beach, FL	5.10	Hickory, NC	3.08%
SMALL	Glenwood Springs, CO	9.19	Logan, UT	5.98%
	Rock Springs, WY	5.19	Glenwood Springs, CO	3.73%
	Twin Falls, ID	4.98	Washington, NC	3.58%
	Logan, UT	4.79	Hattiesburg, MS	3.23%
	Farmington, NM	4.76	Auburn, AL	2.80%
	Panama City, FL	4.68	Farmington, NM	2.53%
	Washington, NC	4.53	Columbia, TN	2.39%
	Monett, MO	4.45	Bainbridge, GA	2.34%
	Gillette, WY	4.44	Farmington, MO	2.19%
	Hattiesburg, MS	4.39	South Boston, VA	2.18%

Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Table 5: Top Ten Regions: Comparisons of Entrepreneurship Capacity and Performance by Regional Size (cont.)

	Top 10 Regions	Percentage of Firms Growing Rapidly (1991-1996)	Top 10 Regions	Regional Entrepreneurship Index
LARGE	Austin, TX	7.24%	Las Vegas, NV	99.70%
	Phoenix, AZ	7.06%	Salt Lake City, UT	97.90%
	Salt Lake City, UT	6.91%	Atlanta, GA	96.90%
	Las Vegas, NV	6.52%	Charlotte, NC	96.40%
	Atlanta, GA	6.47%	Raleigh, NC	95.90%
	Albuquerque, NM	6.33%	Phoenix, AZ	95.10%
	Denver, CO	6.24%	Denver, CO	93.60%
	Nashville-Davidson, TN	5.99%	Boston, MA	92.80%
	Tucson, AZ	5.94%	Austin, TX	92.60%
	Portland, OR	5.92%	Portland, OR	91.80%
MEDIUM	Provo, UT	7.96%	Provo, UT	99.40%
	Richfield, UT	7.34%	Wilmington, NC	98.90%
	Fayetteville, AR	6.92%	Bend, OR	98.40%
	Fort Collins, CO	6.76%	Richfield, UT	98.20%
	Cortez, CO	6.61%	Cortez, CO	97.70%
	Elkhart, IN	6.53%	Boise City, ID	97.40%
	Boise City, ID	6.18%	Fort Collins, CO	97.20%
	Colorado Springs, CO	6.13%	Butte-Silver Bow, MT	96.60%
	Killeen, TX	6.08%	Reno, NV	96.10%
	Grand Junction, CO	6.00%	Gainesville, GA	95.60%
SMALL	Farmington, NM	7.32%	Glenwood Springs, CO	100.00%
	Glenwood Springs, CO	6.44%	Logan, UT	99.20%
	Logan, UT	5.87%	Farmington, NM	98.70%
	Monett, MO	5.69%	Hattiesburg, MS	94.10%
	Columbus, IN	5.54%	Twin Falls, ID	93.10%
	Paducah, KY	5.40%	Panama City, FL	91.00%
	Paris, TN	5.32%	Washington, NC	88.80%
	Panama City, FL	5.22%	Hibbing, MN	83.90%
	Twin Falls, ID	5.21%	Fergus Falls, MN	83.90%
	McMinnville, TN	5.19%	Rock Springs, WY	82.90%

Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Figure 4: Average Regional Entrepreneurship Index

Average Regional Entrepreneurship Index	All U.S. Regions	Small Regions	Medium Regions	Large Regions
	50.0%	39.7%	49.8%	60.3%
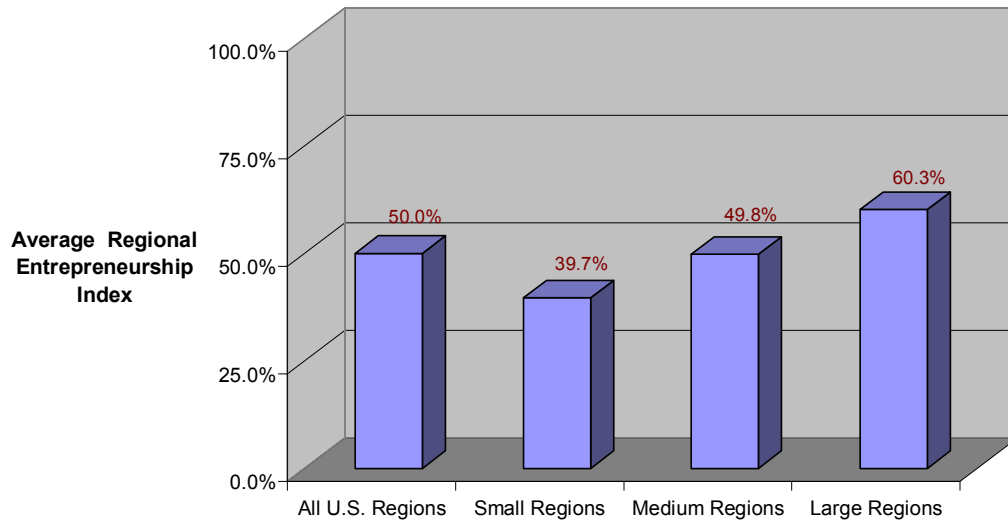
Source: 1990-2001 LEEM data file, U.S. Census Bureau

In summary, entrepreneurship is not the exclusive domain of large, resource-rich communities. In fact, entrepreneurs are active in regions of all sizes, regardless of the capacity of the local development asset base. As such, regional developers should incorporate strategies for entrepreneurship development into their overall approach to economic growth. But, what impact does entrepreneurship have on the growth of regional economies? What long-term economic gain can regional leaders expect if they are to invest to accelerate the level of entrepreneurship activity in their regions?

Regional Economic Impact

Despite the nation's dynamic entrepreneurial culture, there is a high degree of variability in the level of entrepreneurship between regions. The ratio of the number of new firm births for the most and least entrepreneurial regions is nearly 5:1, as detailed in the previous section. Even among regions of similar size there is substantial variability in the level of entrepreneurship. However, the challenge is in determining what difference the level of entrepreneurship makes. Without a clear understanding of the economic impact, it is difficult to predict the benefits of an increased investment in entrepreneurship capacity. Do those regions with higher levels of entrepreneurship activity realize better than average economic gains? Are there significant competitive advantages for those regions that are able to maintain higher levels of entrepreneurship?

Entrepreneurship and Regional Economic Growth

Entrepreneurship is by nature an economic process. Various studies have demonstrated a positive and direct link between entrepreneurship and regional[5] and national[6] economic growth. The Nexus initiative models entrepreneurship activity (i.e., firm births in 1995) against several select measures of regional economic growth, namely growth in employment, wages, and productivity from 1995 to 1999. Each test controlled for regional variations in the rate of growth in personal income between 1995 and 1999 and the percent of total employment in manufacturing sectors in 1999. The effects of regional growth are captured in knowledge spillovers or the economies of information flows, both of which have been linked to variations in regional economic activity and output.[7] Findings generally suggest that regions benefit from higher rates of population and personal income growth. Industrial restructuring, including the shift from manufacturing employment to services, has also been linked to variations in economic growth. Such research suggests that regions benefit when employment is less dependent on traditional manufacturing sectors.[8]

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[5] See Reynolds, P. (1993) Autonomous firm dynamics and economic growth in the United States, 1986-1990, *Regional Studies*, 28(4): 429-442 and Davidson, P., Lindmark, L. and Olafsson, C. (1994) New firm formation and regional development in Sweden, *Regional Studies*, 28(4): 347-358.

[6] See the annual executive reports of the Global Entrepreneurship Monitor, particularly Reynolds, P., Hay, M. and Camp, S. M. (1999) Global Entrepreneurship Monitor: 1999 Executive Report, Ewing Marion Kauffman Foundation, Kansas City, MO.

[7] See Audretsch, D. B. and Feldman, M. P. (1996) R&D spillovers and the geography of innovation and production, *American. Economic Review,* 86, 630–40; Reynolds, P. (1993) Autonomous firm dynamics and economic growth in the United States, 1986-1990, *Regional Studies*, 28(4): 429-442; and Armington, C. and Acs, Z. J. (2002) Determinants of regional variation in new firm formation, *Regional Studies*, 36(1): 33-45.

[8] For example, see Krugman, P. (1991) History and industry location: the case of the manufacturing belt, *American Economic Review,* 81, 80–83.

Test results are presented in Tables 6A (employment growth), 6B (wage growth) and 6C (productivity growth). As indicated, the model explains a significant level of variation in each measure of regional economic growth. As expected, the rate of growth in personal income is significantly positive in all three tests. The effect of the percent of employment in manufacturing sectors is negative in all three tests, but the coefficient is not significant for productivity (Table 6C). The four year lag between measures of entrepreneurship activity and economic growth, the positive and significant coefficients for entrepreneurship activity and the relatively high levels of explained variation for each test suggest that entrepreneurship activity is a driver of regional economic growth.[9]

Table 6A: Results of Regression Analysis of the Relationship Between Entrepreneurship and Regional Employment Growth

Employment Growth[1]	Coefficient	Probability	Standard Error	t-stat
Constant	0.010331	0.001	0.003145	3.29
Income Growth[2]	0.224920	0.000	0.067160	3.35
Percent of Employment in Manufacturing Sectors[2]	-0.029457	0.000	0.005892	-5.00
Firm Births (1995)[3]	0.000001	0.000	0.000000	3.87
R^2	16.7%	---		
F	26.08	0.000		

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Regional Economic Information System, Bureau of Economic Analysis.
[3] Source: 1990-2001 LEEM data file, U.S. Census Bureau

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[9] While there are certainly other factors that affect regional economies, such as the changing demographics of the workforce and changing demand for products and services that the area produces, the models presented here indicate that innovation and entrepreneurship are likely factors also. Future research that takes into account the role of innovation and entrepreneurship in economic development while controlling for factors such as those mentioned above and focusing on different points in the business cycle will help verify the nexus of innovation and entrepreneurship in regional economic development.

Developers understand that strengthening a regional economy is more than just adding jobs. The goal is to add quality jobs that pay consistently higher wages. It is important, therefore, that the findings from the regression analysis on employment growth (Table 6A) and wage growth (Table 6B) are similar. The model in Table 6B shows that regions that have higher levels of entrepreneurship activity realize growth in average wages. Regions with greater entrepreneurship activity also experience higher levels of productivity growth (Table 6C).

Table 6B: Results of Regression Analysis of the Relationship Between Entrepreneurship and Regional Wage Growth

Wage Growth[1]	Coefficient	Probability	Standard Error	t-stat
Constant	0.028170	0.000	0.003798	7.42
Income Growth[2]	0.585660	0.000	0.081110	7.22
Percent of Employment in Manufacturing Sectors[2]	-0.035246	0.000	0.007115	-4.95
Firm Births (1995)[3]	0.000004	0.000	0.000000	8.03
R[2]	35.4%	---		
F	71.09	0.000		

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Regional Economic Information System, Bureau of Economic Analysis
[3] Source: 1990-2001 LEEM data file, U.S. Census Bureau

Regional Entrepreneurship Index

The difference entrepreneurship makes to a regional economy is perhaps best illustrated using an analysis of variance to compare economic growth between the most and least entrepreneurial regions. As in the previous section, this assessment uses the Regional Entrepreneurship Index (REI) to provide a more complete picture of the impact of entrepreneurship. For analysis purposes, all 394 regions were rank ordered according to their REI score and the resulting distribution was divided into quartiles. Analysis of variance tests were used to test for significant differences between the upper quartile, which represented the "most entrepreneurial regions," and the bottom quartile, which

constituted the "least entrepreneurial regions." Results are depicted in Table 7, revealing why regional leaders should include strategies for accelerating indigenous entrepreneurship activity in their development efforts.

The differences between the averages for the most and least entrepreneurial regions depicted in Table 7 are statistically significant at that .001 level. As indicated, those regions with the highest levels of entrepreneurship activity realized significant economic advantages. The average annual growth in employment from 1990 to 2001 for the most entrepreneurial regions (among regions of all sizes) was 125 percent greater than the average for the least entrepreneurial regions. The most entrepreneurial regions also experienced significantly higher gains in average annual wage growth. Also, the average annual rate of productivity growth for the most entrepreneurial regions was 109 percent greater than the average for the least entrepreneurial regions.

Table 6C: Results of Regression Analysis of the Relationship Between Entrepreneurship and Regional Productivity Growth

Productivity Growth[1]	Coefficient	Probability	Standard Error	t-stat
Constant	0.002396	0.609	0.004683	0.51
Income Growth[2]	0.579800	0.000	0.100000	5.80
Percent of Employment in Manufacturing Sectors[2]	-0.003421	0.697	0.008774	-0.39
Firm Births (1995)[3]	0.000004	0.000	0.000001	7.05
R^2	22.1%	---		
F	36.86	0.000		

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Regional Economic Information System, Bureau of Economic Analysis.
[3] Source: 1990-2001 LEEM data file, U.S. Census Bureau

Differences in the level of entrepreneurship activity are also depicted in Figure 5. Most notably, the average annual rate of change in new firm formation for the most entrepreneurial regions is positive and significantly greater than that of the least entrepreneurial regions. Between 1990 and 2001, the least entrepreneurial regions

actually realized a decrease in the average number of new firms created each year. In order for regions to compete effectively for development resources, they must be able to sustain strategic advantages over time. This analysis suggests that regions that are able to consistently increase the rate of new firm formation may realize important competitive advantages.

Table 7: Differences in Key Economic Factors between the Most and Least Entrepreneurial Regions (All U.S. Regions)

Economic Growth Factor	REI: Most Entrepreneurial	REI: Least Entrepreneurial	Point Difference	Percent Difference
Average Annual Employment Growth (1990-2001)[1]	2.7%	1.2%	1.5%	125%
Average Annual Wage Growth (1990-2001)[1]	6.8%	4.3%	2.5%	58%
Average Annual Productivity Growth (1990-2001)[1]	4.8%	2.3%	2.5%	109%
Average Number of New Firm Births (2001)[2]	2,620	453	2,167	478%
Average New Firm Births per 1,000 Labor Force (1990-2001)[2]	4.3	2.6	1.7	65%
Average Annual Change in New Firm Births (1990-2001)[2]	2.2%	-2.1%	4.3%	----
Proportion of Young Firms Growing Successfully (1991-1996)[2]	5.4%	3.6%	1.8%	50%

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: 1990-2001 LEEM data file, U.S. Census Bureau

Differences by Regional Size

An analysis of variance was conducted to determine if the economic impact of entrepreneurship is different for regions of varying size. For analysis purposes, regions were classified as either "large," "medium" or "small." All 394 regions were rank ordered according to total population and the resulting distribution was divided into quartiles. The upper quartile represented "large regions," while the bottom quartile constituted "small regions." The second and third quartiles comprised the "medium-sized regions." Tables 8, 9, and 10 compare the averages on several key economic outcome measures for the most and least entrepreneurial regions by size category.[10] As the tables and corresponding figures suggest, regions with the highest level of entrepreneurship activity also have significantly higher levels of economic growth.

Figure 5: Economic Growth in All U.S. Regions Comparing Most and Least Entrepreneurial Regions
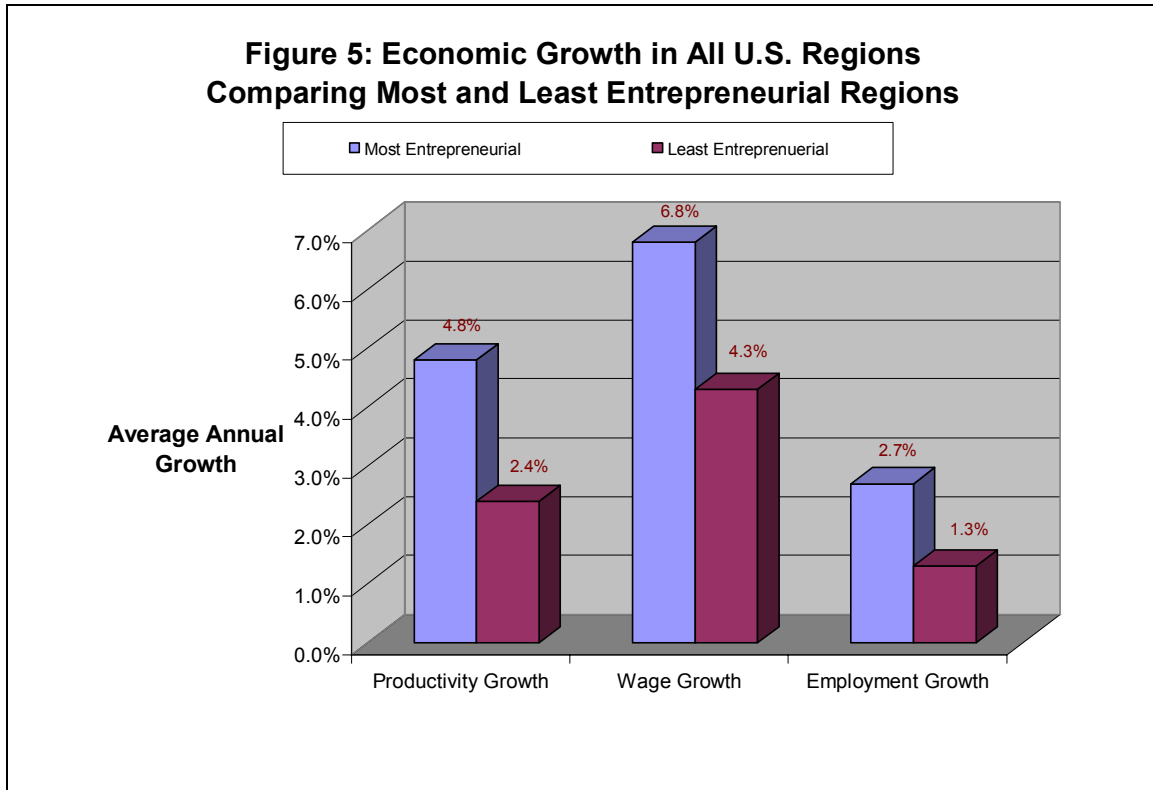
Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

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[10] As in the previous section, all 394 regions were rank ordered according to their REI score and the resulting distribution was divided into quartiles. Analysis of variance tests were used to test for significant differences between the upper quartile, which represented the "most entrepreneurial regions," and the bottom quartile, which constituted the "least entrepreneurial regions."

Differences in economic growth between the most and the least entrepreneurial regions are most significant for large regions (Table 8 and Figure 6). Among large U.S. regions, the most entrepreneurial realize 100 percent greater average annual gains in employment and 146 percent greater average gains in productivity than the least entrepreneurial. In addition, average annual wage growth for the most entrepreneurial large regions is 7.8 percent, which is 73 percent greater than that of the least entrepreneurial (4.5%). Entrepreneurship appears to be linked with higher levels of economic growth and prosperity. These advantages also appear sustainable over time as the most entrepreneurial of large regions accelerate the average annual rate of new firm creation over the least entrepreneurial regions.

Table 8: Differences in Key Economic Outcomes between the Most and Least Entrepreneurial Regions (Large Regions)

Economic Growth Factor	REI: Most Entrepreneurial	REI: Least Entrepreneurial	Point Difference	Percent Difference
Average Annual Employment Growth (1990-2001)[1]	2.8%	1.4%	1.4%	100%
Average Annual Wage Growth (1990-2001)[1]	7.8%	4.5%	3.3%	73%
Average Annual Productivity Growth (1990-2001)[1]	5.9%	2.4%	3.5%	146%
Average Number of New Firm Births (2001)[2]	4,508	1,746	2,762	158%
Average Annual Change in New Firm Births (1990-2001)[2]	1.6%	-1.1%	2.7%	----

[1] Source: Bureau of Labor Statistics 199--2001, select computations provided by Economy.com
[2] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Among U.S. regions of medium size, the most entrepreneurial realize 85 percent greater average annual gains in employment and 58 percent greater average gains in productivity than the least entrepreneurial (Table 9 and Figure 7). In addition, average annual wage growth for the most entrepreneurial medium-sized regions is 6.1 percent, which is 45 percent greater than that of the least entrepreneurial regions in this category.

Like the best of the large regions, the most entrepreneurial medium-sized regions appear to possess an advantage in their ability to leverage indigenous entrepreneurship activity for long-term economic gain. On average their rate of growth in the number of new firms created each year is significantly greater than that of the least entrepreneurial medium-sized regions.
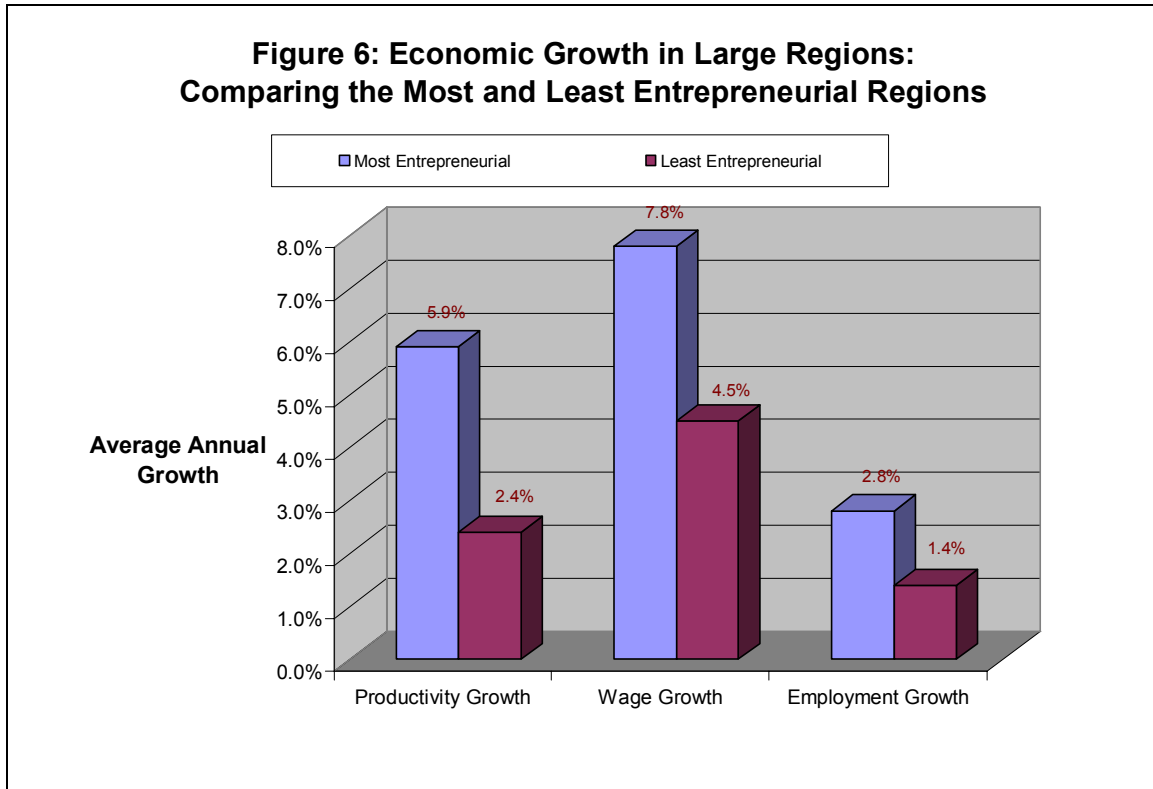
Figure 6: Economic Growth in Large Regions: Comparing the Most and Least Entrepreneurial Regions

Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

Among small U.S. regions, the most entrepreneurial realize 73 percent greater average annual growth in employment and 50 percent greater average gains in productivity than the least entrepreneurial (Table 10 and Figure 8). In addition, average annual wage growth for the most entrepreneurial among the small regions is 14 percent greater than that of the least entrepreneurial regions in this size category. The entrepreneurial elite among the smaller regions on average also produce 87 percent more new ventures, and, like their large and medium counterparts, are able to sustain their competitive advantage over other small, less entrepreneurial regions. The average annual rate of growth in new ventures is positive for the most entrepreneurial regions and significantly greater than that of small regions with the least entrepreneurial capacity.

**Table 9:   Differences in Key Economic Outcomes between the Most and Least Entrepreneurial Regions (Medium-Sized Regions)**

Economic Growth Factor	REI: Most Entrepreneurial	REI: Least Entrepreneurial	Point Difference	Percent Difference
Average Annual Employment Growth (1990-2001)[1]	2.4%	1.3%	1.1%	85%
Average Annual Wage Growth (1990-2001)[1]	6.1%	4.2%	1.9%	45%
Average Annual Productivity Growth (1990-2001)[1]	3.8%	2.4%	1.4%	58%
Average Number of New Firm Births (2001)[2]	805	415	390	94%
Average Annual Change in New Firm Births (1990-2001)[2]	2.0%	-1.6%	3.6%	----

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

**Table 10:   Differences in Key Economic Outcomes between the Most and
Least Entrepreneurial Regions (Small Regions)**

Economic Growth Factor	REI: Most Entrepreneurial	REI: Least Entrepreneurial	Point Difference	Percent Difference
Average Annual Employment Growth (1990-2001)[1]	1.9%	1.1%	.8%	73%
Average Annual Wage Growth (1990-2001)[1]	4.9%	4.3%	.6%	14%
Average Annual Productivity Growth (1990-2001)[1]	3.3%	2.2%	1.1%	50%
Average Number of New Firm Births (2001)[2]	333	178	155	87%
Average Annual Change in New Firm Births (1990-2001)[2]	1.6%	-2.4%	4.0%	----

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Figure 7: Economic Growth in Medium-Sized Regions: Comparing Most and Least Entrepreneurial Regions
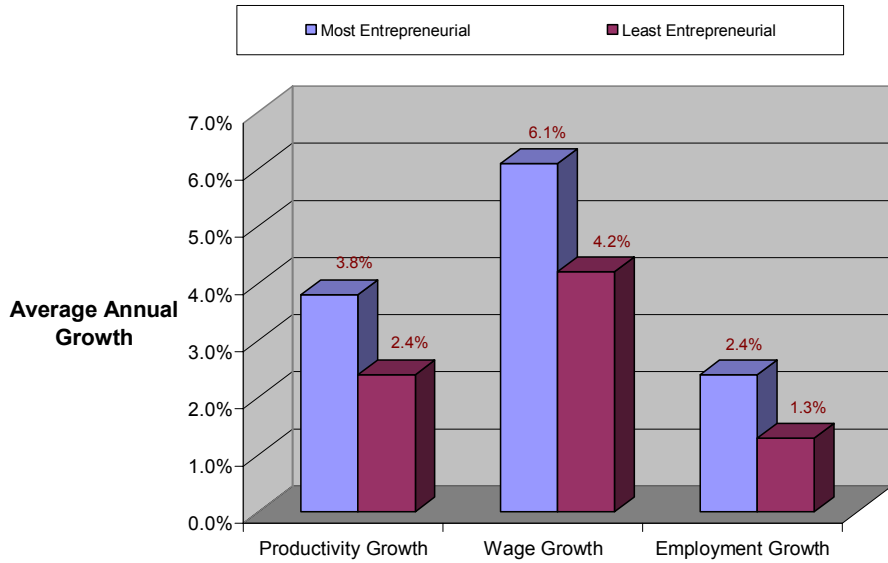
Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

Figure 8: Economic Growth in Small Regions: Comparing Most and Least Entrepreneurial Regions
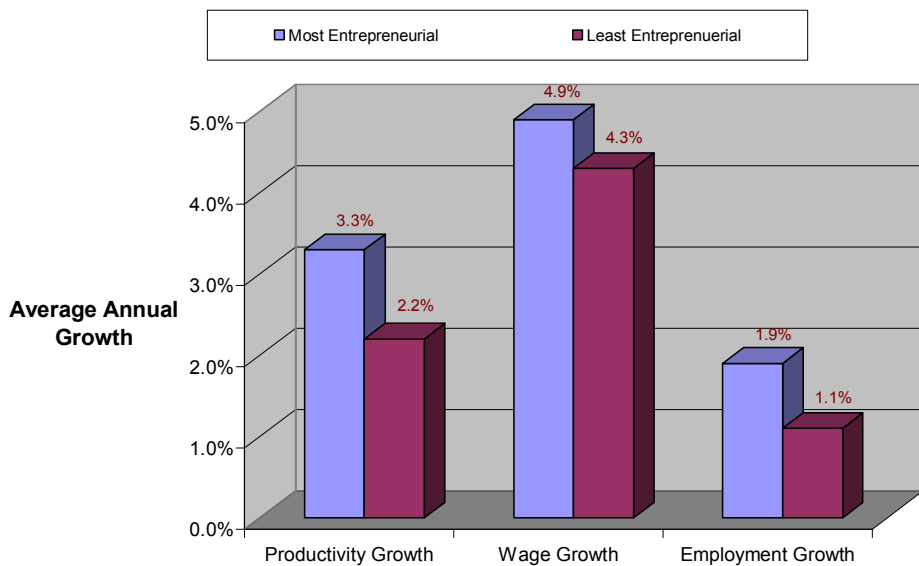
Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

The Innovation-Entrepreneurship NEXUS

Research findings presented in the previous sections demonstrate the degree to which the level of entrepreneurship varies from region to region. The findings also show that entrepreneurship is a driver of regional economic growth, regardless of regional size. Furthermore, it is clear that regions that are able to accelerate their level of entrepreneurship over time (i.e., average annual increase in the number of new firm births) realize significant economic returns. But what makes a region entrepreneurial? What strategies are available to developers as they strive to accelerate entrepreneurship in their regions?

The following two sections examine key attributes of our nation's most entrepreneurial regions to better understand the nature of regional entrepreneurship development. This section focuses exclusively on the role of innovation assets and the extent to which innovation and entrepreneurship work together to affect regional economies. The next section examines the influence of industry structure and competitive dynamics.

The Nexus Proposition Defined

For several years scholars have studied the impact of innovation on the economy. The idea of *"value-based competitiveness,"* popularized by Michael Porter and colleagues, theoretically states that innovation leads to increased productivity, which leads to greater competitiveness, which ultimately results in stronger regional economies. However, the value-based competitiveness proposition generally overlooks the role of entrepreneurship in deriving economic value from innovation. As a result, regions of all sizes that continue to make considerable investments in building innovation assets may be able to increase the economic return on those investments with greater attention to the importance of entrepreneurship.

Today, many regions are learning the expensive lesson that innovation is a necessary but insufficient condition for sustained economic growth. As it turns out, some portion of the impact innovation has on a regional economy appears to be the direct result of enterprising entrepreneurs. Entrepreneurs assemble the resources necessary to create economic transaction activity (e.g., new products, new markets, new ventures, etc.) around innovation. The Nexus proposition suggests that the enterprising transaction activity of entrepreneurs (i.e., individual or organizational) enhances the economic value of innovations. To derive the greatest benefit from an investment in innovation capacity, therefore, regional leaders may benefit from a greater understanding of the dynamic role of entrepreneurship and the real opportunities that exist at the innovation-entrepreneurship nexus.

The Nexus Proposition, therefore, proposes that entrepreneurship is a generative process through which innovation influences regional economy. In other words, all or

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some of the overall impact of innovation on regional economy is indirectly realized through entrepreneurship. To test the proposition, the first step involved testing the overall effect of innovation and entrepreneurship on regional employment (see Model 1 in Table 11).[11] As illustrated for Model 1 in Table 11, innovation and entrepreneurship are both positive and statistically significant factors in regional employment change. The coefficient for each independent variable represents the direct effect of that variable on regional employment.

Table 11:   Regression Results: Testing the Mediating Effects of Entrepreneurship on Innovation and Regional Employment[12]

Regression Models	Correlation	Coefficient	t-stat	Probability	R^2
Model 1: Total Employment[1]					
Innovation[2]	.723	512.8	4.67	0.000	81.1%
Entrepreneurship[3]	.716	121.1	26.03	0.000	
Model 2: Entrepreneurship					
Innovation	.611	16.4	18.95	0.000	48.0%
Model 3: Total Employment					
Innovation	.723	2,494.6	19.02	0.000	48.2%

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: National Science Foundation's Survey of R&D Expenditures
[3] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

To ascertain whether entrepreneurship mediates between innovation and regional employment, as proposed, the next step involved estimating the influence of innovation on entrepreneurship (Model 2). The results presented for Model 2 in Table 11 suggest

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[11] Since the mediated model involves measured variables, the basic analysis approach is multiple regression. For more information, see Baron, R. M. and Kenny, D. A. (1986) The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations, *Journal of Personality and Social Psychology, 51*, 1173-1182. See also Kenny, D. A., Kashy, D. A. and Bolger, N. (1998) Data analysis in social psychology. In D. Gilbert, S. Fiske, and G. Lindzey (Eds.), *The handbook of social psychology*, Vol. 1, 4th ed., 233-265; Boston, MA: McGraw-Hill.

[12] For these tests innovation is measured using the level of R&D investment in 1993; entrepreneurship is measured as the number of new firm births in 1996, and regional employment is measured as total employment in 1999.

that innovation and entrepreneurship are statistically significant and highly correlated. The coefficient represents the direct effect of innovation on entrepreneurship activity. The third step involved estimating the total effect of innovation on regional employment (Model 3). Comparing the direct and indirect effects of innovation on regional employment, we see that the indirect effect through entrepreneurship is larger than the direct effect alone (Model 1). In other words, in support of the Nexus proposition, entrepreneurship appears to mediate between innovation and regional employment.

Leveraging Regional Innovation Assets

Given the complementary relationship between innovation and entrepreneurship, it should come as no surprise that the most entrepreneurial regions in the United States also possess the greatest innovation capacity. For this project, innovation capacity is measured by total R&D expenditures, the number of patents issued, process innovation capacity, the percent of all input/output transactions[13] that occur with high technology sectors (i.e., regional technology orientation), and the proportion of all firms in the region that operate in high technology sectors[14] (i.e., technology dependency) (Table 12). Three of these variables, total R&D expenditures, the number of patents issued, and regional technology orientation, were used to create the Regional Innovation Capacity Index (RICI).

The advantage of using an index, like RICI, is that it captures the true innovation capacity within a region more effectively than any single measure. In addition, as a relative measure it is effective for conducting comparisons between regions and regional types over time. RICI is computed from equally weighted relative rankings on the three measures. Scores range from 100 percent (i.e., the most innovation capacity) to 0 percent (i.e., the least innovation capacity). Based on RICI, San Jose, CA ranks as the nation's most innovative region, followed closely by Raleigh, NC, San Francisco, CA and Austin, TX.

Table 12 provides a comparison of the averages for each unique measure of innovation capacity between the most and least entrepreneurial regions in the U.S. As revealed, the most entrepreneurial regions consistently outscore the least entrepreneurial regions on all critical measures.[15] The most entrepreneurial regions are not only able to

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[13] Input-output (I-O) accounts show the production of goods and services by each industry, the use of goods and services by each industry, the commodity composition of gross domestic product (GDP), and the industry distribution of value added. These I-O accounts are used in a variety of analytical and statistical contexts, including in studies of interdisciplinary relationships within the economy. For more information see 2000 Input-Output Accounts at the U.S. Bureau of Economic Analysis.

[14] High technology industries are classified according to the classification system developed by the Milken Institute. For example, see Devol, R. and Wong, P. (1999) *America's High-Tech Economy: Growth, Development and Risks for Metropolitan Areas*. Santa Monica, CA: Milken Institute.

[15] As noted in the previous section, all regions were rank ordered according to their REI and the resulting distribution was divided into quartiles. The upper most quartile represented the "most entrepreneurial regions," while the bottom quartile represented the "least entrepreneurial regions."

create a greater number of new companies at a faster rate over a longer period of time, but the innovation asset base from which they derive new business opportunities is strong. This combination further strengthens the competitive advantage these regions maintain for development resources and opportunities.

Table 12: Innovation Capacity of the Most and Least Entrepreneurial Regions

Innovation Asset Base	REI: Most Entrepreneurial	REI: Least Entrepreneurial	Percent Difference
1999 Average R&D Expenditures per 1,000 Population[1]	$.086	$.056	54%
1999 Average Patents per 1,000 Labor Force[2]	.586	.351	67%
Percent of All I-O Transactions with High Technology Industries[3]	28.7%	20.4%	41%
Average Annual Growth in Productivity[o]	4.8%	2.3%	109%
Percent of All Firms in High Technology Sectors (1999)[o]	2.6%	1.6%	63%
Regional Innovation Capacity Index (Average Relative Ranking)[o]	65.2%	42.0%	55%

[1] Source: National Science Foundation's Survey of R&D Expenditures
[2] Source: U.S. Patent and Trademark Office
[3] Source: 2000 Input-Output Accounts, U.S. Bureau of Economic Analysis
[o] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

Table 13 lists the 20 regions with the highest average relative levels of innovation capacity (RICI) and entrepreneurial activity (REI). Though many of the regions are known for their innovation and entrepreneurial activity, there are some regions that may be surprises among the group. In particular, two small regions are among the top 20: Logan, UT and Glenwood Springs, CO – the nation's most entrepreneurial region.

A region's innovation capacity is also a strong predictor of the level of entrepreneurship in that region. Subsequent analyses used regional innovation capacity to estimate expected levels of entrepreneurship in each region. This measure was then compared to the actual level of entrepreneurship to determine the degree to which a region was leveraging its innovation assets. As depicted in Figure 9, large regions, with their greater resource pool, are generally more effective at leveraging their innovation assets. A large number of small and medium-sized regions do not produce the level of entrepreneurship activity that their innovation assets will support.

Table 13: Most Innovative/Entrepreneurial Regions in the United States: Based on Average Relative Rankings on Innovation Capacity and Entrepreneurship Activity

U.S. Region	Regional Size	Regional Innovation Capacity Index (Relative Rank)	Regional Entrepreneurship Index (Relative Rank)
1. Fort Collins, CO	Medium	98.7%	97.2%
2. Raleigh, NC	Large	99.7%	95.9%
3. Provo, UT	Medium	93.8%	99.4%
4. Austin, TX	Large	99.2%	92.6%
5. Boston, MA	Large	98.9%	92.8%
6. Denver, CO	Large	97.9%	93.6%
7. San Jose, CA	Large	100.0%	90.8%
8. Logan, UT	Small	91.8%	99.2%
9. Atlanta, GA	Large	93.3%	96.9%
10. Salt Lake City, UT	Large	92.1%	97.9%
11. San Francisco, CA	Large	99.4%	90.3%
12. Boise, ID	Medium	91.3%	97.4%
13. Minneapolis, MN	Large	96.9%	89.8%
14. Phoenix, AZ	Large	91.6%	95.1%
15. Portland, OR	Medium	92.6%	91.8%
16. Burlington, VT	Medium	95.9%	87.7%
17. Colorado Springs, CO	Medium	88.5%	95.4%
18. Glenwood Springs, CO	Small	83.9%	100.0%
19. Tucson, AZ	Large	93.1%	87.0%
20. Dallas, TX	Large	95.6%	83.2%

Source: 1990-2001 LEEM data file, U.S. Census Bureau

Economic Benefits

Given the direct and positive impact of entrepreneurship on regional economic growth, regions that are most able to leverage their innovation assets through entrepreneurship appear to realize stronger competitive advantages and greater economic gains. Table 14 reveals the significant differences for key economic indicators between

regions that are able to leverage their innovation assets and those that are not. For this test, all 394 regions were rank ordered based on a combined weighted average of regional innovation capacity and entrepreneurship activity. The resulting distribution was segmented into quintiles. Analysis of variance tests were conducted to determine the mean differences between the upper (i.e., the "most innovative/entrepreneurial regions") and the lower quintiles (i.e., the "least innovative/entrepreneurial regions"). All differences depicted in Table 14 are statistically significant at that .001 level.

As Table 14 and Figure 10 reveal, regions with the greatest ability to leverage their innovation assets through entrepreneurship realize significant economic advantages. The average annual growth in employment from 1990 to 2001 for the most innovative/entrepreneurial regions (all regions) was 2.6 percent, which was more than double the average for the least innovative/entrepreneurial regions. The average annual growth in wages was 59 percent higher for those regions with the greatest ability to leverage their innovation capacity through entrepreneurship. In addition, the average annual rate of productivity growth for the most innovative/entrepreneurial regions was 4.9 percent between 1990 and 2001, which was more than double the average for less innovative/entrepreneurial regions (Table 14).

Differences by Regional Size

An analysis of variance was also conducted by regional size to determine if the economic benefits of leveraging innovation assets through entrepreneurship were consistent across regions of varying sizes. As in previous sections, regions were classified as either "large," "medium" or "small" based on the rank ordering of total population. The resulting distribution was divided into quartiles with the upper quartile representing "large regions," the middle two quartiles representing medium-sized regions and the bottom quartile constituting "small regions." Within each size category, regions were then rank ordered based on combined weighted measures of the Regional Innovation Capacity Index and Regional Entrepreneurship Index, for which the final distribution was divided into quartiles. The analysis of variance tests compared values on several critical economic indicators between the upper and lower quartiles for each regional size category.

Figure 9: Leveraging Innovation Assets: Percent of Regions Producing More or Less Entrepreneurship than Expected
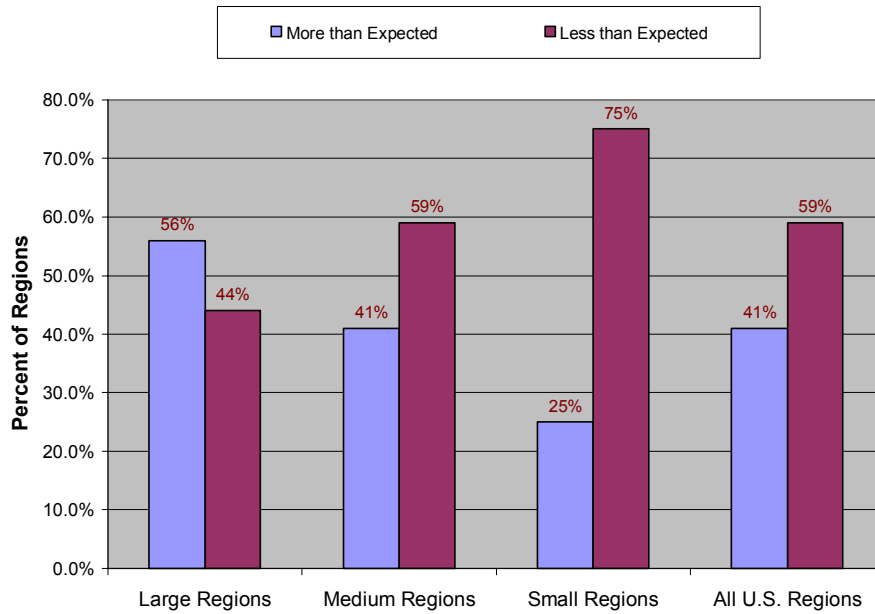
Source: 1990-2001 LEEM data file, U.S. Census Bureau[16]

Tables 15, 16 and 17 compare the averages on several key economic indicators for the most and least innovative/entrepreneurial regions for large, medium and small regions respectively. As the tables and corresponding figures suggest, the innovation-entrepreneurship nexus is related to regional economic growth for regions of all sizes, and, as such, represents a significant economic consideration.

Among the nation's largest regions, the differences in regional economic growth between the most and least innovative/entrepreneurial regions are compelling (Table 15 and Figure 11). Among the largest regions, the most innovative and entrepreneurial realized nearly 70 percent greater average annual gains in employment and 142 percent greater average annual gains in productivity than the least innovative/entrepreneurial regions between 1990 and 2001. In addition, average annual wage growth for the most innovative/entrepreneurial large regions was 7.7 percent, which was 64 percent greater than the average for least innovative/entrepreneurial regions. Among large regions, the most innovative and entrepreneurial realized an increase in the average annual number of new firm births that was significantly greater than the least innovative/entrepreneurial regions. In fact, the least innovative/entrepreneurial large regions experienced an average annual decline of .7 percent in new firm births between 1990 and 2001.

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[16] Expected values for entrepreneurship activity were calculated for each region based on the level of R&D investment, number of patents, and technology orientation.

Table 14: Differences in Key Economic Indicators between the Most and Least Innovative-Entrepreneurial Regions (All 394 U.S. Regions)

Key Economic Indicator	Most Innovative/ Entrepreneurial Regions	Least Innovative/ Entrepreneurial Regions	Point Difference	Percent Difference
Average Annual Employment Growth (2001)[1]	2.6%	1.2%	1.4	117%
Average Annual Wage Growth (2001)[1]	7.0%	4.4%	2.6	59%
Average Annual Productivity Growth (2001)[1]	4.9%	2.4%	2.5	104%
Average Number of New Firm Births (2001)[2]	4,040	304	3,736	1,230%
Average Annual Number of New Firm Births per 1,000 Labor Force (1990-2001)[2]	4.07	2.87	1.20	42%
Average Annual Change in New Firm Births (1990-2001)[2]	1.6%	-1.6%	3.2	----
Regional Innovation Capacity Index (Average Relative Rank)	83.7%	19.1%	NA	NA
Regional Entrepreneurship Index (Average Relative Rank)	82.9%	18.8%	NA	NA

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Figure 10: Economic Gains of the Innovation-Entrepreneurship Nexus: Comparing Most and Least Innovative/Entrepreneurial Regions
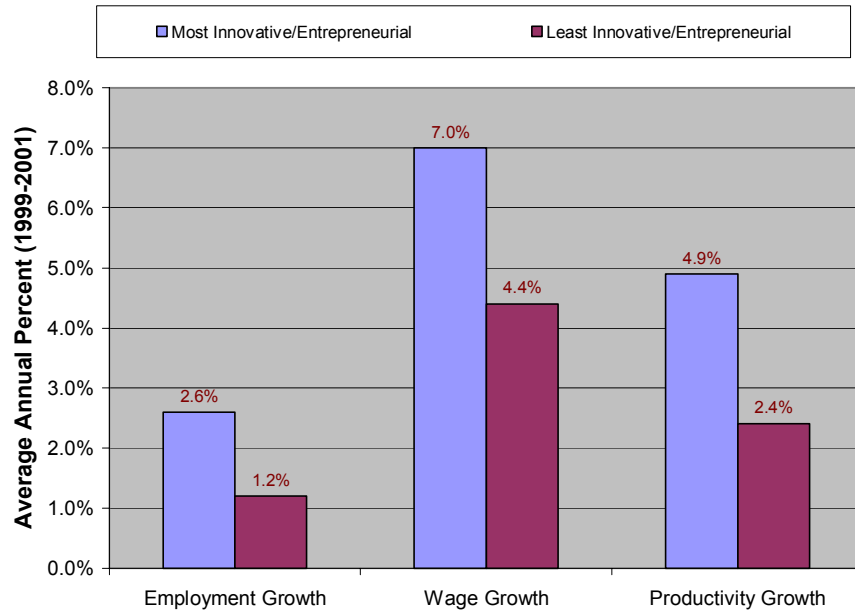
Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

Among medium-sized regions, the most innovative/entrepreneurial realized 72 percent greater average annual growth in employment and 63 percent greater average gains in productivity than the least innovative/entrepreneurial (Table 16 and Figure 12). In addition, average annual wage growth for the most entrepreneurial medium-sized regions was 6.2 percent, which was 110 percent greater than that of the least innovative/entrepreneurial regions in this size category. On average, the most innovative/entrepreneurial medium-sized regions realize a faster rate of growth in the number of new firms created each year than the least innovative/entrepreneurial medium-sized regions.

Among small U.S. regions, those most able to fully leverage their innovation assets through entrepreneurship also realize economic advantages. Between 1990 and 2001, they realized a 171 percent greater average annual growth in employment and 85 percent greater average gains in productivity than the least innovative/entrepreneurial (Table 17 and Figure 13). In addition, average annual wage growth for the most innovative/entrepreneurial was 18 percent greater than that of the least innovative/entrepreneurial regions in this size category. The most innovative entrepreneurial smaller regions on average also produced 59 percent more new ventures in 2001. The average annual rate of growth in new ventures was not only positive, it was also significantly greater than that of small regions with less innovative/entrepreneurial capacity.

Table 15: Differences in Key Economic Indicators between the Most and Least Innovative-Entrepreneurial Regions (Large Regions)

Key Economic Indicator	Most Innovative/ Entrepreneurial Regions	Least Innovative/ Entrepreneurial Regions	Point Difference	Percent Difference
Average Annual Employment Growth (2001)[1]	2.7%	1.6%	1.1	69%
Average Annual Wage Growth (2001)[1]	7.7%	4.7%	3.0	64%
Average Annual Productivity Growth (2001)[1]	5.8%	2.4%	3.4	142%
Average Number of New Firm Births (2001)[2]	7,339	1,316	6,023	458%
Average Annual Number of New Firm Births per 1000 Labor Force (1990-2001)[2]	3.75	2.90	.85	29%
Average Annual Change in New Firm Births (1990-2001)[2]	1.3%	-0.7%	2.0	----
Regional Innovation Capacity Index (Relative Rank)	83.0%	21.5%	NA	NA
Regional Entrepreneurship Index (Relative Rank)	84.9%	31.5%	NA	NA

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Figure 11: Economic Benefits: Comparing the Most and Least Innovative Entreprenreurial Regions (Large Regions)
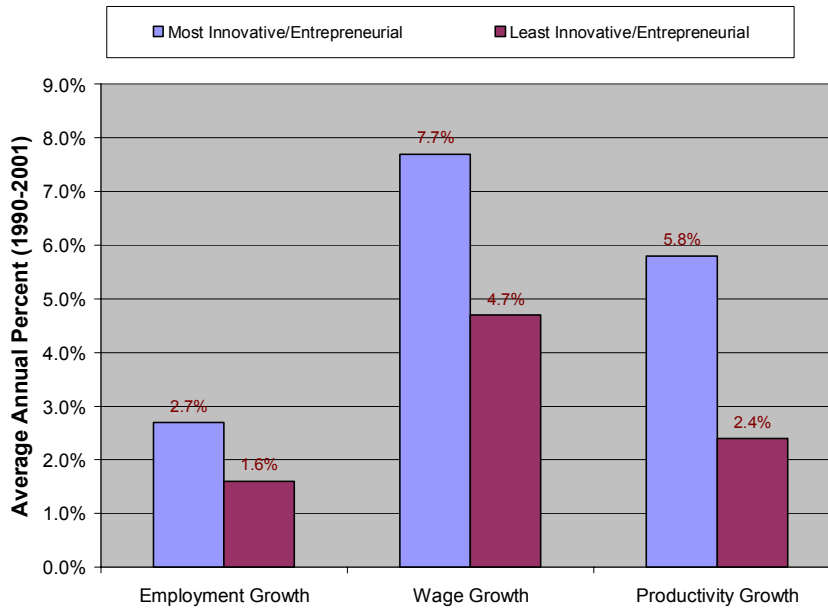
Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

Figure 12: Economic Benefits: Comparing the Most and Least Innovative Entrepreneurial Regions (Medium Regions)
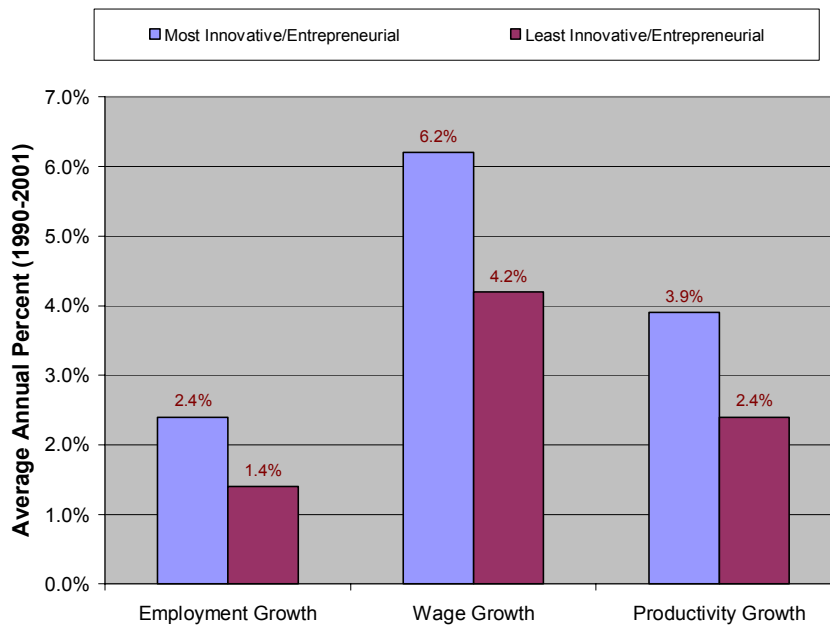
Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

Table 16: Differences in Key Economic Indicators between the Most and Least Innovative-Entrepreneurial Regions (Medium-Sized Regions)

Key Economic Indicator	Most Innovative/ Entrepreneurial Regions	Least Innovative/ Entrepreneurial Regions	Point Difference	Percent Difference
Average Annual Employment Growth (2001)[1]	2.4%	1.4%	1.0	72%
Average Annual Wage Growth (2001)[1]	6.2%	4.2%	2.0	110%
Average Annual Productivity Growth (2001)[1]	3.9%	2.4%	1.5	63%
Average Number of New Firm Births (2001)[2]	901	397	504	127%
Average Annual Number of New Firm Births per 1000 Labor Force (1990-2001)[2]	4.21	2.87	1.34	47%
Average Annual Change in New Firm Births (1990-2001)[2]	1.6%	-1.6%	3.2	----
Regional Innovation Capacity Index (Average Relative Rank)	80.6%	20.1%	NA	NA
Regional Entrepreneurship Index (Average Relative Rank)	81.8%	21.9%	NA	NA

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Table 17: Differences in Key Economic Indicators between the Most and Least Innovative-Entrepreneurial Regions (Small Regions)

Key Economic Indicator	Most Innovative/ Entrepreneurial Regions	Least Innovative/ Entrepreneurial Regions	Point Difference	Percent Difference
Average Annual Employment Growth (2001)[1]	1.9%	0.7%	1.2	171%
Average Annual Wage Growth (2001)[1]	5.2%	4.4%	0.8	18%
Average Annual Productivity Growth (2001)[1]	3.7%	2.0%	1.7	85%
Average Number of New Firm Births (2001)[2]	334	210	124	59%
Average Annual Number of New Firm Births per 1000 Labor Force (1990-2001)[2]	3.92	3.00	.92	31%
Average Annual Change in New Firm Births (1990-2001)[2]	1.3%	-0.7%	2.0	----
Regional Innovation Capacity Index (Average Relative Rank)	83.0%	21.5%	NA	NA
Regional Entrepreneurship Index (Average Relative Rank)	84.9%	31.5%	NA	NA

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Figure 13: Economic Benefits: Comparing the Most and Least Innovative Entrepreneurial Regions (Small Regions)
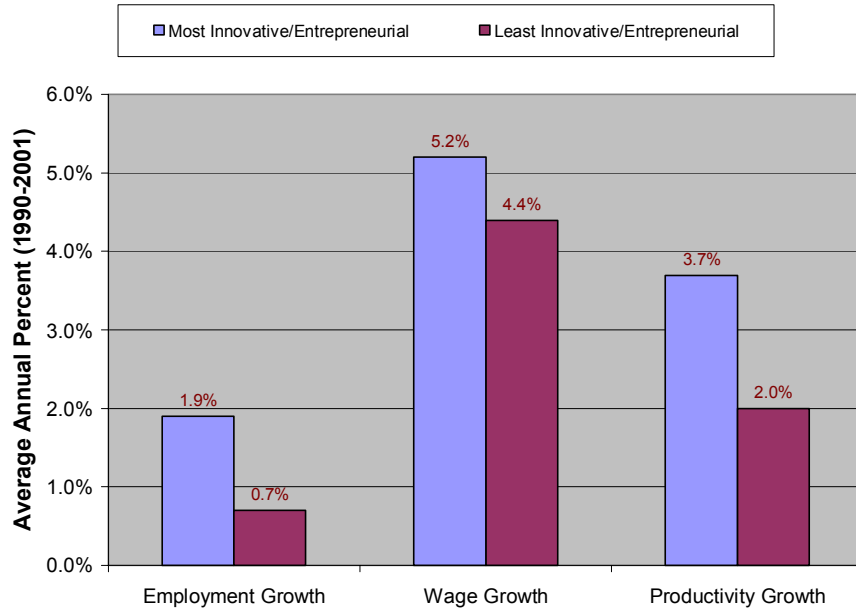
Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

Regional Drivers of Entrepreneurship

       Results of analyses in the previous sections clearly show that regions with higher levels of entrepreneurship activity realize significant economic advantages, regardless of their size. The critical development question, therefore, is, "what makes a region entrepreneurial?" Previous attempts to explain why some regions are more entrepreneurial than others have focused on the quantity, affordability and accessibility of development resources (e.g., financial capital, managerial talent, technology, etc.). Findings from previous studies have generally confirmed that regions rich in developmental resources realize significantly more entrepreneurship and greater economic growth.[17]

Figure 14: Average R&D Expenditure per 1,000 Population (2001)
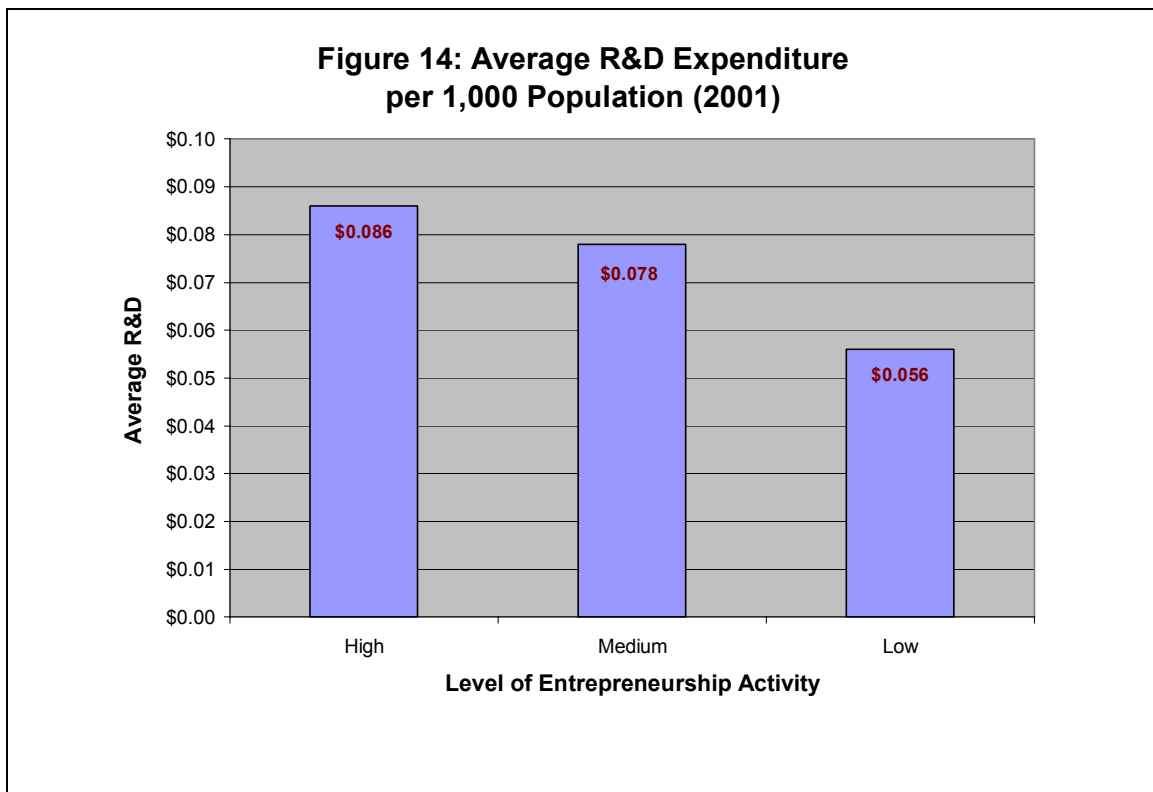
Source: National Science Foundation's Survey of R&D Expenditures

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[17] See for example, Reynolds, P., Miller, B. and Maki, W. R. (1994) Regional characteristics affecting business volatility in the United States, 1980–1984, in Karlsson, C., Johanneson, J. and Storey, D. J. (Eds.) *Small Business Dynamics: International, National and Regional Perspectives*, 78–115, Routledge, London.

Entrepreneurship Development Assets

These findings were confirmed in this assessment of cross-regional variation in entrepreneurship activity using specific measures of the availability of technology and managerial talent. For this assessment, all U.S. regions were again rank ordered based on their Regional Entrepreneurship Index (REI). As in the previous sections, the resulting distribution was divided into quartiles with the upper quartile representing the "high level of entrepreneurship activity," the middle two quartiles representing the "medium level of entrepreneurship activity," and the bottom quartile constituting the "low level of entrepreneurship activity." Analysis of variance tests were subsequently conducted to determine if regions with higher levels of entrepreneurship possessed greater quantities of these critical development assets (see Figures 14, 15, 16 and 17). All differences are statistically significant at the .05 level or lower.

As depicted in Figure 14, the most entrepreneurial regions possess significantly higher levels of R&D expenditures. These regions expend nearly 54 percent more on R&D than the least entrepreneurial regions. Though regions with "low" entrepreneurship activity averaged about 20 percent more patents in 2001 than regions with a medium level of entrepreneurship activity, the average number of patents for regions with the highest level of entrepreneurship was nearly double the average for medium regions (Figure 15).

Figure 15: Average Patents
per 1,000 Labor Force (2001)
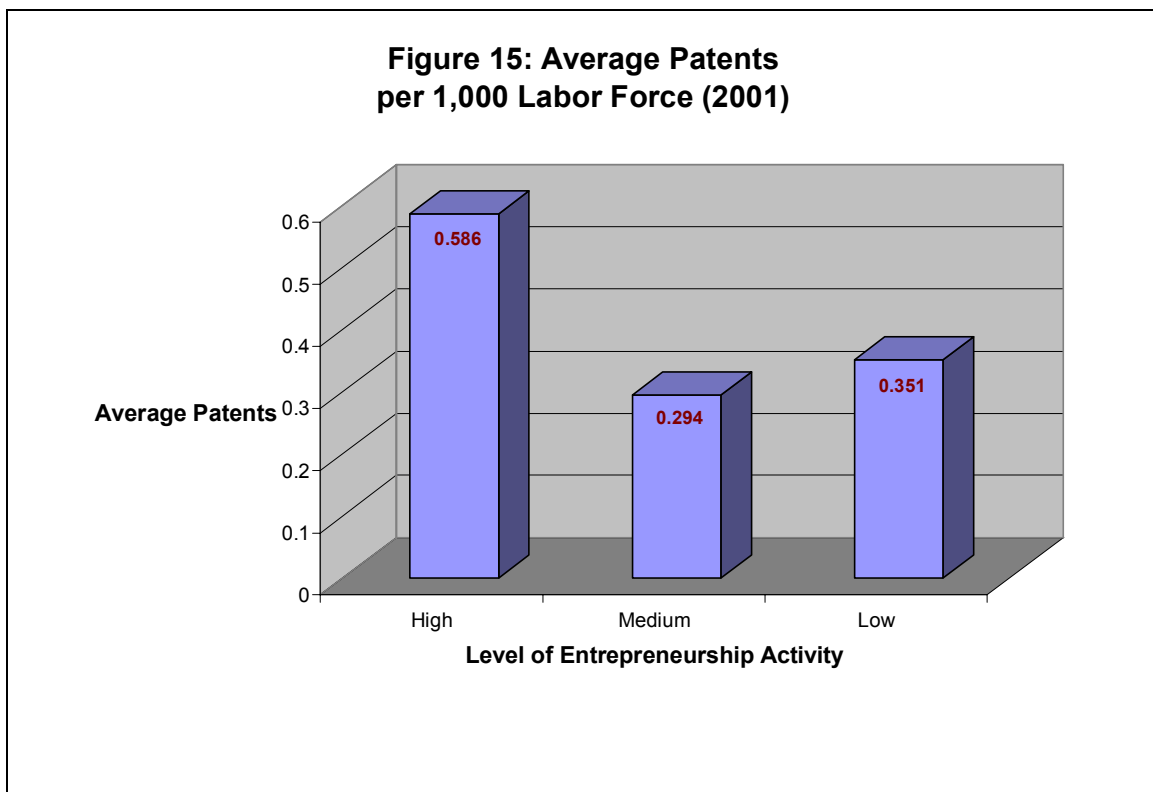
Source: U.S. Patent and Trademark Office

The presence of establishments in high technology sectors is another way of representing the availability of technology in a region. Given resource constraints, market entry barriers and the basic premise of industry clustering, it is reasonable to expect technology to be more available in regions where a higher percentage of firms operate in technology sectors.[18] Figure 16 depicts the average percent of all establishments that operate in traditional high technology sectors for regions of high, medium and low levels of entrepreneurship activity. The average percent of establishments competing in high tech sectors for the most entrepreneurial regions (2.6 percent) is nearly 63 percent greater than the average for the least entrepreneurial regions (1.6 percent) (Figure 16).
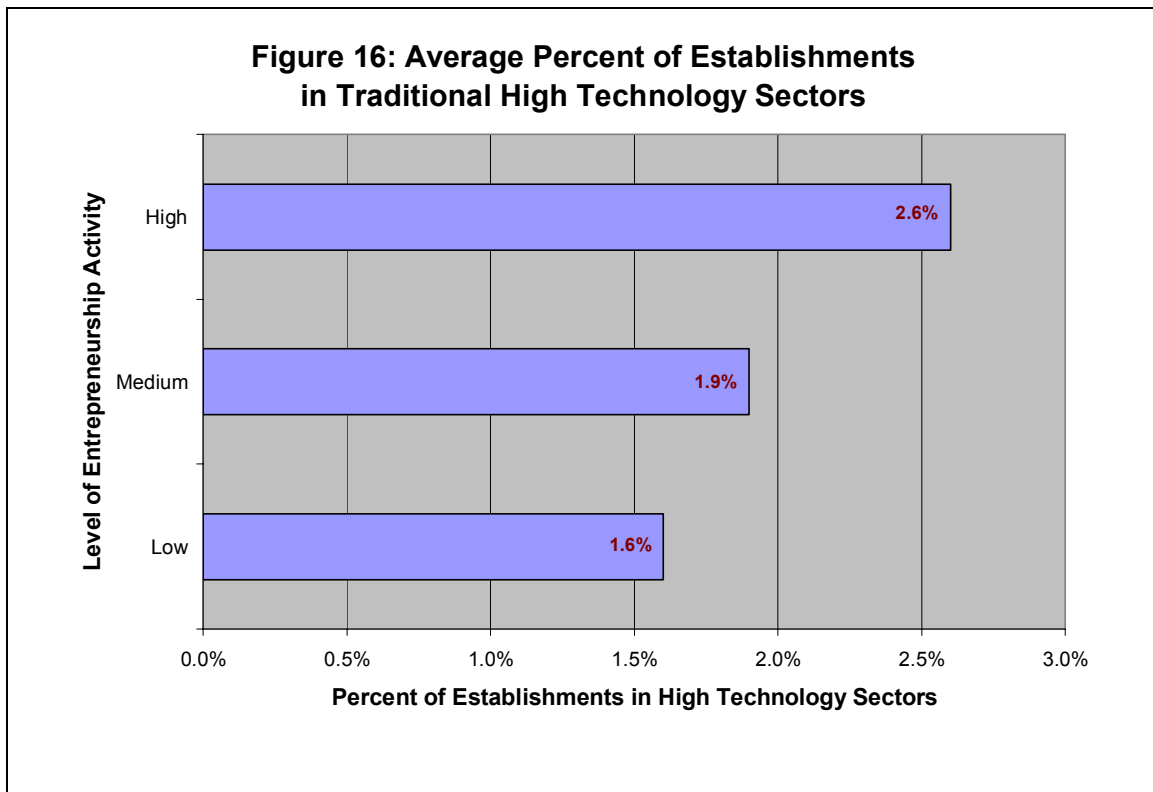
Figure 16: Average Percent of Establishments in Traditional High Technology Sectors

Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com

The quality of the labor pool, as measured by education and experience, is another regional asset known to be important to entrepreneurship development. For this assessment, labor quality was operationalized using the percent of the population with a college degree.[19] Figure 17 shows the average percent of the population with a college

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[18] For this analysis, high technology industries are classified according to the classification system developed by the Milken Institute. For example, see Devol, R. and Wong, P. (1999) *America's High-Tech Economy: Growth, Development and Risks for Metropolitan Areas*. Santa Monica, CA: Milken Institute.

[19] See Armington, C. and Acs., Z.J. (2002) Determinants of regional variation in new firm formation, *Regional Studies*, 36(1): 33-45.

degree for regions with high, medium and low levels of entrepreneurship. As expected, the most entrepreneurial regions possess the highest proportion of the population with a college degree (19.5%). The average for the most entrepreneurial regions is more than 42 percent higher than the average for the least entrepreneurial regions (13.7%).

Industry Structure and Competitive Dynamics

These findings confirm what other studies have shown about the importance of regional development resources in driving entrepreneurship activity. Yet, few studies have considered the impact of the structure and competitive nature of the industries present within a region on the availability of development resources. This is an important question when you consider the extent to which industry structure determines the capacity and flow of developmental resources. Though far from a perfect process, over time entrepreneurial resources tend to flow to the opportunities that present the greatest potential economic returns. These returns are largely determined by the rate, volume and profit level of the inherent transaction activity. However, the level of entrepreneurial transaction activity is strongly influenced by the competitive dynamics of industries.[20]

Figure 17: Average Percent of Population with a College Degree
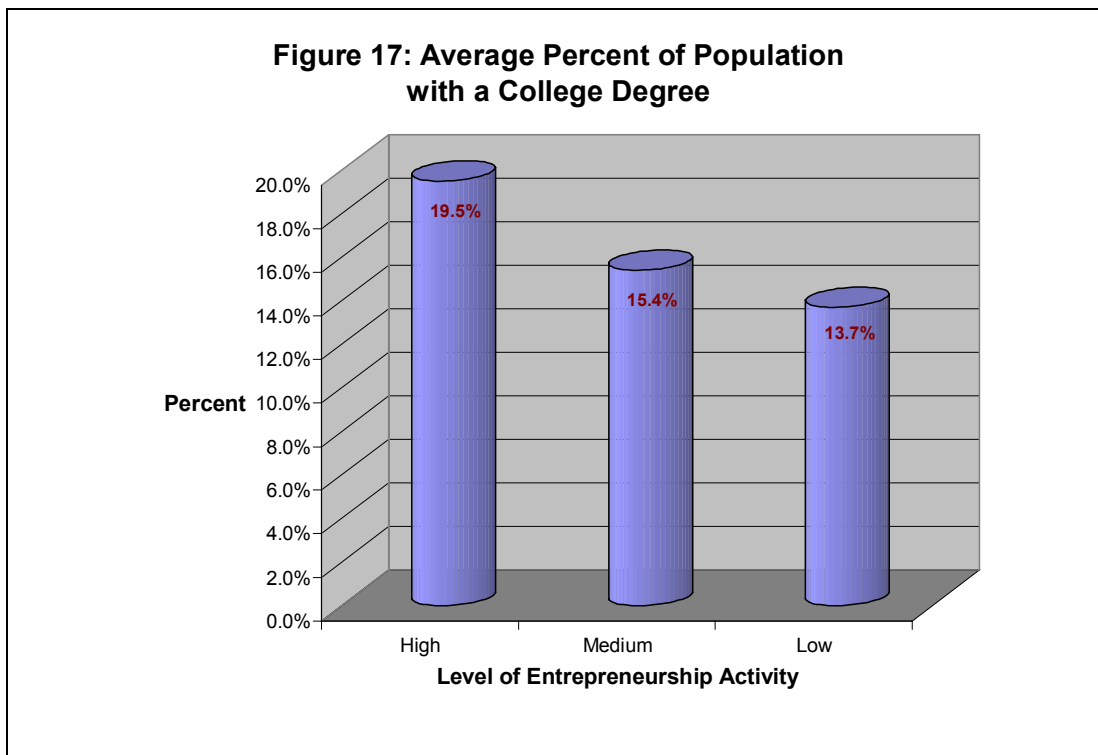
Source: U.S. Census Bureau

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[20] See Aldrich, H. E. (1979) *Organizations and Environments.* Englewood Cliffs, NJ: Prentice Hall. See also Pennings, J. M. (1982) Organizational birth frequencies: An empirical investigation, *Administrative Science Quarterly*, 27: 120-144.

This assessment examined several different factors in order to better understand the scope of regional entrepreneurship activity, the availability of development assets and the costs of those assets which indirectly affects the quality, size and momentum of profitable opportunities. These are important factors which, despite their influence on the availability and cost of development resources, have not been fully explored in the study of regional entrepreneurship development. Market processes demand that scarce entrepreneurial resources flow to where the opportunities for economic gain are the greatest. Economic gains are greatest where the industry structure and competitive dynamics provide a broad scope of new business opportunities and ensure that the resources needed to pursue those opportunities are available and affordable. The overarching question in this phase of the assessment is, therefore, "What industry characteristics influence the level of entrepreneurship in a region?"

Drawing from the understanding of regional externalities, the analysis first examined the degree to which technology is embedded in a region's industry structure and whether that influences the level of regional entrepreneurship activity. *Technology dominance* was measured as the percent of establishments in the region that operate in high technology industries. Also, *technology orientation* was measured as the percent of a region's total input/output (I/O) transaction activity that occurs with traditional high technology industries. For simplicity sake, comparisons were made between the averages for these factors for the most and the least entrepreneurial regions as measured by REI. As illustrated in Table 18, the percent of establishments in high technology industries for the most entrepreneurial regions (2.6%) is 63 percent greater than that of the least entrepreneurial regions (1.6%). All differences are significant at the .05 level or better. In addition, regions with high levels of entrepreneurship activity also have significantly higher levels of I/O transaction activity with technology sectors. Resident industries in these regions appear more dependent on technology to drive productivity, which, in the long-run, drives regional growth and vitality.

The assessment also examined the extent to which a region's industry structure is dominated by manufacturing or service industries and what impact this has on the level of entrepreneurship activity. Many regions that are dominated by manufacturing-based industries have realized a steady decline in the level of economic growth in the last 30 years. On the other hand, many of those regions that have made a successful transition to service-based economies have been able to sustain growth during this time. As depicted in Table 18, those regions with the highest levels of entrepreneurship have significantly fewer employees in traditional manufacturing sectors (12.3%) than the least entrepreneurial regions (18.5%). The difference is not as apparent for the percent of total employment in service sectors, however. The average percent of total employment in service-based industries is 31.5 percent for the most entrepreneurial regions, compared to 28.5 percent for the least entrepreneurial regions (Table 18). However, this difference is still statistically significant.

Table 18: Industry Structure and Competitive Dynamics of the Most and Least Entrepreneurial Regions

Industry Structure and Competitive Dynamics	REI: Most Entrepreneurial	REI: Least Entrepreneurial	Percent Difference
Technology Dominance: Percent of Establishments in High Technology industries[1]	2.6%	1.6%	63%
Technology Orientation: Percent of I/O Transaction Activity with High Technology Industries[2]	28.7%	20.4%	41%
Percent of Employment in Manufacturing Sectors[3]	12.3%	18.5%	----
Percent of Employment in Service Sectors[3]	31.5%	28.5%	11%
Percent of Industries that are Traded[1]	26.3%	22.4%	17%

[1] Source: Bureau of Labor Statistics 1990-2001, select computations provided by Economy.com
[2] Source: 2000 Input-Output Accounts, U.S. Bureau of Economic Analysis
[3] Source: Regional Economic Information System, U.S. Bureau of Economic Analysis

The competitiveness of an industry can partly be determined by the level to which it is produces goods and services that are traded outside of the region. Traded industries comprise those industries where the volume of transaction activity is greater than what is needed to support the local demand.[21] It is measured by the percent of employment in a particular industry as it relates to the expected level of employment in that industry in a region. Industries that possess a greater percent of employment in a region than would be expected based on the distribution of employment within that industry nationally, are employing more people in order to satisfy demand outside of the regional area. Local-serving industries on the other hand represent those industries for which employment levels are sufficient to satisfy only the local demand.

When compared to local-serving industries, traded industries are generally larger (i.e., more resources), grow faster (i.e., more opportunities), and pay higher average

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[21] Porter, M. E. (2003) The economic performance of regions, *Regional Studies*, 37(6-7): 549-578.

wages (i.e., greater sustained profitability).[22] The added resources, opportunities and profits of traded industries support significantly greater levels of entrepreneurship activity. As depicted in Table 18, in regions with higher levels of entrepreneurship activity the percent of all industries that are traded (26.3%) is significantly higher than in those regions with lower levels of entrepreneurship (22.4%). Though the percentage difference appears small, it translates into a difference of thousands of jobs. Furthermore, given the accelerated growth and higher than average wages of traded industries, the difference means thousands of higher quality jobs.

Differences by Regional Size

As in previous sections, an analysis of variance was conducted to determine if the relationship between industry structure and competitiveness and entrepreneurship activity were consistent across regions of varying sizes. The following tables compare the averages for several measures of entrepreneurship activity between the highest and lowest levels (i.e., upper and lower quartiles of each factor distribution) of technology orientation (Table 19), percent of employment in manufacturing (Table 20), and percent of industries that are traded (Table 21). As the following tables reveal, industry structure and competitive dynamics play a significant role in determining a region's level of entrepreneurship activity regardless of regional size.

As Table 19 illustrates, all four measures of entrepreneurship activity are higher for regions with higher degrees of technology orientation. All comparisons shown in Table 19 are statistically significant except the difference in the average annual number of new firm births per 1,000 labor force for small regions. These results suggest that regions with a high degree of technology orientation among their resident industries posses an advantage in terms of entrepreneurship development. In addition, based on the rate at which these regions are adding new ventures over regions with less technology orientation, these advantages may be sustainable over time.

Such advantages are also evident for regions that are less dominated by manufacturing-based economies (Table 20). The comparisons in Table 20 show that regions that are heavily dominated (i.e., percent of total employment) by manufacturing industries realize significantly lower levels of entrepreneurship activity, regardless of their size. All the comparisons depicted in Table 20 are statistically significant at the .05 level or better. This is particularly disturbing in light of tremendous costs and risks associated with transitioning to a service-based economy. Regions that look to their core industries to become less dominated by manufacturing are unlikely to realize change substantive enough to counter the advantages of other more competitive regions. However, regions dominated by manufacturing that are able to birth and nurture new industries that are less dependent on manufacturing, can realize significant gains in their level of entrepreneurship activity and their ability to compete for greater levels of entrepreneurial assets.

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[22] Porter, M. E. (2003) The economic performance of regions, *Regional Studies*, 37(6-7): 549-578.

Table 19: Differences in the Level of Entrepreneurship Activity by Degree of Technology Orientation

Measures of Entrepreneurship Activity	Technology Orientation by Regional Size					
	Large Regions		Medium Regions		Small Regions	
	High	Low	High	Low	High	Low
Average Number of New Firm Births (2001)[1]	5,984	1,345	744	448	267	228
Average Annual Change in New Firm Births (1990-2001)[1]	0.8%	0.5%	0.5%	0.0%	-0.1%	-0.4%
Average Annual Number of New Firm Births/1,000 Labor Force (1990-2001)[1]	3.7	3.2	3.5	3.2	3.3	3.2
Regional Entrepreneurship Index (Average Relative Rank)[1]	73.4	50.7	56.6	47.8	39.9	37.4

[1] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Table 21 shows that the more competitive regions can be in the industries that make up their economic base, the more entrepreneurship activity there is to drive economic growth and development. For regions of all sizes, a strong competitive presence coincides with a greater level of entrepreneurship activity. Given the extent to which entrepreneurship drives regional economic growth and the fact that regions that possess strong competitors in their respective industries realize greater levels of entrepreneurship, regional developers should consider how to improve the competitiveness of their existing industries as one means of accelerating entrepreneurship in their region. This is especially critical in regions where the average annual change in new firm births is low or declining.

In summary, while entrepreneurial assets, such as technology, financing, and managerial talent, are important for entrepreneurship development, the structure and competitive dynamics of industries may represent a more foundational consideration. Not only do regions realize significant differences in levels of entrepreneurship activity based on industry composition, but industry competitive dynamics influence the quality and volume of entrepreneurial activity, which, in turn, dictates how scarce developmental resources are allocated. The industry structure and competitive dynamics of a region

determines the scope of new venture opportunities, the availability and affordability of development resources and the potential for long-term economic gain.

Table 20: Differences in the Level of Entrepreneurship Activity by Percent of Employment in Manufacturing

Measures of Entrepreneurship Activity	Manufacturing Employment by Regional Size					
	Large Regions		**Medium Regions**		**Small Regions**	
	Low	**High**	**Low**	**High**	**Low**	**High**
Average Number of New Firm Births (2001)[1]	4,601	1,869	646	487	303	213
Average Annual Change in New Firm Births (1990-2001)[1]	0.3%	-0.5%	0.0%	-0.2%	-0.4%	-0.2%
Average Annual Number of New Firm Births/1000 Labor Force (1990-2001)[1]	4.0	2.8	3.8	2.9	3.9	2.9
Regional Entrepreneurship Index (Relative Rank)[1]	67.7	37.2	58.1	43.5	48.6	37.5

[1] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

The historical bias in the geographical disbursement of venture capital flows[23] provides evidence that the availability and price of entrepreneurial assets in a region are heavily dictated by the scope of opportunity in that region. And, to a large extent, opportunities are determined by the composition, structure and dynamics of the resident industries. Lately, many regions are considering or taking significant action to establish an operational presence in industries that are relatively new to the region (e.g., life sciences). Given the size of these investments, developers must consider whether or not the region can afford the investment necessary to establish a competitive industry presence – one capable of driving significant entrepreneurial opportunities, creating competitive resource advantages and sustaining those advantages for long-term economic gain.

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[23] For example, see *2004 Venture Capital Yearbook*. National Venture Capital Association: Arlington, VA.

Table 21: Differences in the Level of Entrepreneurship Activity by Percent of Industries that are Traded

Measures of Entrepreneurship Activity	Percent of Industries Traded by Regional Size					
	Large Regions		Medium Regions		Small Regions	
	High	Low	High	Low	High	Low
Average Number of New Births (2001)[1]	7,787	1,928	847	419	305	211
Average Annual Change in New Firm Births (1990-2001)[1]	0.7%	0.2%	0.3%	-0.1%	-0.3%	-0.5%
Average Annual Number of New Firm Births/1000 Labor Force (1990-2001)[1]	3.6	3.5	3.6	3.2	3.6	3.0
Regional Entrepreneurship Index (Relative Rank)[1]	67.0	58.6	57.3	46.1	44.1	36.0

[1] Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau

Key Measures and Rankings of Regional Entrepreneurship Activity

Regions Ranked in Descending Order by Regional Entrepreneurship Index[1]

(Source: Compiled from the 1990-2001 LEEM data file, U.S. Census Bureau)

Region	Size	Regional Entrepreneurship Index	Average Annual New Firm Births per 1,000 Labor Force (1990-2001)	Rank	Average Annual Change in New Firm Births (1990-2001)	Rank	Percent of Firms Growing Rapidly (1991-1996)	Rank
Glenwood Springs, CO	Small	100.0%	9.185	1	3.735%	13	6.443%	13
Las Vegas, NV	Large	99.7%	4.776	26	5.229%	4	6.521%	11
Provo, UT	Medium	99.4%	4.447	36	4.545%	7	7.962%	1
Logan, UT	Small	99.2%	4.789	25	5.980%	3	5.870%	25
Wilmington, NC	Medium	98.9%	4.861	20	3.802%	10	5.878%	24
Farmington, NM	Small	98.7%	4.757	27	2.532%	29	7.317%	3
Bend, OR	Medium	98.4%	6.258	3	2.804%	22	5.621%	37
Richfield, UT	Medium	98.2%	5.165	13	2.064%	49	7.342%	2
Salt Lake City, UT	Large	97.9%	4.225	49	3.843%	9	6.913%	7
Cortez, CO	Medium	97.7%	5.654	9	1.853%	56	6.609%	9
Boise City, ID	Medium	97.4%	4.264	47	3.385%	16	6.181%	16
Fort Collins, CO	Medium	97.2%	4.314	45	2.543%	28	6.760%	8
Atlanta, GA	Large	96.9%	4.387	42	2.455%	30	6.465%	12
Butte-Silver Bow, MT	Medium	96.6%	5.057	16	2.805%	21	5.214%	63
Charlotte, NC	Large	96.4%	4.278	46	3.746%	12	5.440%	45
Reno, NV	Medium	96.1%	5.349	11	2.545%	27	5.206%	65
Raleigh, NC	Large	95.9%	4.083	62	3.214%	18	5.848%	26
Gainesville, GA	Medium	95.6%	3.989	70	4.797%	6	5.679%	35
Colorado Springs, CO	Medium	95.4%	4.190	52	1.894%	55	6.129%	17
Phoenix, AZ	Large	95.1%	3.972	71	1.808%	57	7.064%	5
Kalispell, MT	Medium	94.9%	5.829	8	2.303%	37	5.015%	89
Gallup, NM	Medium	94.6%	3.736	97	10.096%	2	5.491%	41
Hattiesburg, MS	Small	94.1%	4.386	43	3.230%	17	5.026%	84

City	Size							
Grand Junction, CO	Medium	94.1%	6.254	4	0.712%	121	5.997%	19
Savannah, GA	Medium	93.8%	4.834	23	1.677%	63	5.210%	64
Denver, CO	Large	93.6%	4.508	35	0.853%	109	6.238%	15
Pocatello, ID	Medium	93.3%	4.608	31	4.873%	5	4.707%	127
Twin Falls, ID	Small	93.1%	4.980	17	1.357%	81	5.205%	66
Boston, MA	Large	92.8%	3.917	77	3.775%	11	5.027%	83
Austin, TX	Large	92.6%	3.685	102	1.490%	71	7.239%	4
Asheville, NC	Medium	92.3%	4.753	28	2.190%	41	4.791%	111
Fayetteville, AR	Medium	92.1%	4.048	65	0.809%	112	6.924%	6
Portland, OR	Large	91.8%	4.075	64	0.663%	125	5.923%	22
Lafayette, LA	Medium	91.6%	3.603	117	2.063%	50	5.385%	49
Medford, OR	Medium	91.3%	4.826	24	0.497%	135	5.254%	58
Panama City, FL	Small	91.0%	4.675	29	0.410%	140	5.216%	62
San Jose, CA	Large	90.8%	3.554	125	1.662%	64	5.421%	46
Florence, SC	Medium	90.5%	4.142	56	1.678%	62	4.689%	131
San Francisco, CA	Large	90.3%	3.963	74	2.006%	52	4.707%	126
Waycross, GA	Medium	90.0%	3.810	87	1.733%	60	4.831%	105
Minneapolis, MN	Large	89.8%	3.307	173	1.934%	53	5.781%	31
Sioux Falls, SD	Medium	89.5%	3.783	93	2.405%	32	4.639%	137
San Diego, CA	Large	89.3%	4.030	67	2.252%	38	4.553%	158
Orlando, FL	Large	89.0%	4.413	40	0.140%	168	5.283%	57
Washington, NC	Small	88.8%	4.526	34	3.578%	15	4.284%	219
Manchester, NH	Large	88.5%	3.581	119	1.046%	98	5.333%	52
Houma, LA	Medium	88.2%	3.364	155	1.464%	74	5.450%	43
Burlington, VT	Medium	87.7%	3.855	81	2.665%	25	4.512%	167
Cape Coral, FL	Medium	87.7%	6.983	2	2.244%	40	4.208%	231
Jacksonville, FL	Large	87.5%	3.970	72	0.586%	132	5.156%	70
Pensacola, FL	Large	87.2%	3.831	83	0.107%	172	5.919%	23
Tucson, AZ	Large	87.0%	3.637	110	0.301%	148	5.941%	21
Greenville, NC	Medium	86.7%	3.803	91	1.377%	78	4.734%	118
Eugene, OR	Large	86.5%	3.860	80	0.185%	161	5.337%	50
Longview, WA	Medium	86.2%	5.143	14	0.772%	114	4.537%	163
Billings, MT	Medium	86.0%	4.542	33	0.649%	126	4.667%	135
St. Cloud, MN	Medium	85.7%	3.138	211	2.314%	36	5.389%	48
Hinesville, GA	Medium	85.4%	3.512	135	1.215%	88	5.127%	73
Brick Township, NJ	Large	85.2%	4.100	61	1.449%	75	4.510%	168

City	Size							
Spokane, WA	Large	84.9%	4.104	60	-0.169%	205	5.514%	39
Tyler, TX	Medium	84.7%	3.537	129	0.898%	106	5.146%	71
Greenville, SC	Large	84.4%	3.692	101	1.271%	84	4.727%	122
Fergus Falls, MN	Small	83.9%	3.820	84	1.626%	66	4.547%	160
Hibbing, MN	Small	83.9%	3.723	98	1.106%	95	4.738%	117
Oklahoma City, OK	Large	83.7%	3.906	78	0.942%	103	4.682%	132
Hickory, NC	Medium	83.4%	3.424	147	3.082%	20	4.583%	149
Dallas, TX	Large	83.2%	3.606	116	0.104%	173	5.796%	30
Rock Springs, WY	Small	82.9%	5.195	12	2.043%	51	4.095%	261
Seattle, WA	Large	82.6%	4.111	59	0.171%	164	4.799%	110
Killeen, TX	Medium	82.4%	2.932	259	1.779%	58	6.085%	18
Traverse City, MI	Medium	82.1%	4.409	41	-0.343%	221	5.083%	77
Los Angeles, CA	Large	81.9%	3.697	99	1.371%	79	4.544%	161
Santa Barbara, CA	Large	81.6%	4.174	54	1.156%	92	4.373%	194
Cleveland, TN	Medium	81.4%	2.866	275	3.673%	14	5.286%	56
Houston, TX	Large	81.1%	3.527	131	0.195%	158	5.235%	60
Springfield, MA	Large	80.9%	4.594	32	11.725%	1	3.747%	317
Providence, RI	Large	80.6%	3.668	105	2.575%	26	4.275%	221
Fort Worth, TX	Large	80.4%	3.174	204	0.754%	116	5.777%	32
Nashville-Davidson, TN	Large	80.1%	3.502	137	-0.117%	198	5.990%	20
Montgomery, AL	Medium	79.6%	3.304	175	1.242%	86	4.952%	95
Corinth, MS	Small	79.6%	4.131	58	1.088%	96	4.332%	202
Macon, GA	Medium	79.3%	3.271	178	2.119%	46	4.677%	133
Barnwell, SC	Large	79.1%	4.196	51	2.079%	47	4.105%	259
Portland, ME	Large	78.8%	4.033	66	1.442%	76	4.298%	217
Rome, GA	Medium	78.6%	3.212	196	1.363%	80	5.019%	87
Laurel, MS	Small	78.3%	3.242	190	2.177%	44	4.696%	130
Wilmington, DE	Medium	77.8%	4.880	19	2.446%	31	3.801%	315
Newark, NJ	Large	77.8%	4.014	68	2.251%	39	4.107%	258
Pueblo, CO	Medium	77.6%	3.519	133	2.696%	24	4.312%	210
New York, NY	Large	77.3%	4.622	30	2.388%	34	3.859%	304
Birmingham (city), AL	Small	77.0%	3.503	136	1.351%	82	4.572%	153
Morristown, TN	Medium	76.8%	3.079	228	1.709%	61	5.035%	82
Alamosa, CO	Medium	76.5%	4.834	22	-0.629%	252	4.882%	98
Miami, FL	Large	76.3%	5.856	7	-0.020%	189	4.452%	179
Kennewick, WA	Medium	76.0%	3.083	227	0.764%	115	5.632%	36

City	Size						
Port Angeles, WA	Medium	75.8%	5.871	6	1.277%	83	291
West Plains, MO	Medium	75.5%	4.356	44	0.415%	139	200
Ocala, FL	Medium	75.3%	4.956	18	0.320%	146	223
Baton Rouge, LA	Large	75.0%	3.317	170	0.006%	184	33
Monett, MO	Small	74.8%	4.446	37	-1.474%	318	34
Mobile, AL	Large	74.5%	3.615	114	-0.081%	194	81
Brownsville, TX	Large	74.3%	3.517	134	0.581%	133	123
Big Rapids, MI	Small	73.7%	3.417	149	1.756%	59	190
Tallahassee, FL	Medium	73.7%	3.336	164	0.345%	144	90
West Palm Beach, FL	Large	73.5%	6.093	5	-0.114%	197	196
Indianapolis, IN	Large	73.2%	3.264	182	0.194%	159	61
Anchorage, AK	Large	73.0%	3.788	92	-0.983%	284	27
Lufkin, TX	Medium	72.7%	3.196	200	0.604%	130	74
Daytona Beach, FL	Medium	72.5%	5.095	15	1.134%	93	298
Dyersburg, TN	Medium	72.2%	3.322	166	0.343%	145	99
Athens, GA	Medium	72.0%	3.501	138	1.657%	65	214
Longview, TX	Medium	71.7%	3.495	140	0.568%	134	143
Springfield, MO	Medium	71.5%	4.177	53	-0.861%	272	93
Green Bay, WI	Medium	71.2%	3.116	217	0.685%	124	79
Little Rock, AR	Medium	70.9%	3.804	90	-1.147%	301	29
Monroe, LA	Medium	70.7%	3.353	158	0.257%	154	109
Muskogee, OK	Small	70.4%	3.247	188	0.285%	152	85
Paris, TN	Small	70.2%	3.237	193	0.065%	180	53
Richmond, VA	Large	69.9%	3.326	165	0.430%	138	125
Paris, TX	Small	69.7%	3.195	201	0.746%	119	112
Bryan, TX	Medium	69.4%	2.943	256	0.433%	137	40
Farmington, MO	Small	69.2%	3.819	85	2.189%	42	310
Gainesville, FL	Medium	68.9%	3.619	113	-0.178%	206	120
San Antonio, TX	Large	68.7%	3.250	186	-0.140%	203	54
Bangor, ME	Medium	68.4%	3.903	79	0.917%	104	262
Spartanburg, SC	Medium	68.1%	3.262	183	2.064%	48	216
Arlington, VA	Large	67.9%	3.203	198	0.261%	153	100
Bainbridge, GA	Small	67.6%	3.383	151	2.339%	35	269
Joplin, MO	Medium	67.4%	3.681	103	0.773%	113	241
Lewiston, ID	Small	67.1%	3.317	171	1.262%	85	203
Kansas City, MO	Large	66.9%	3.451	144	-0.548%	241	76

City	Size							
Tampa, FL	Large	66.6%	4.197	50	-0.472%	237	4.464%	175
Ardmore, OK	Small	66.4%	4.075	63	0.821%	110	3.899%	295
Columbia, SC	Large	66.1%	3.426	146	0.301%	149	4.471%	174
Morganton, NC	Medium	65.9%	3.340	163	3.095%	19	3.944%	287
Birmingham, AL	Large	65.6%	3.281	177	-0.519%	238	5.288%	55
Clarksville, TN	Medium	65.3%	2.601	323	0.890%	108	5.483%	42
Louisville, KY	Large	65.1%	3.039	235	0.143%	167	5.106%	75
Cape Girardeau, MO	Medium	64.8%	3.833	82	-0.272%	210	4.407%	189
Alexandria, LA	Medium	64.6%	3.265	179	0.971%	100	4.324%	204
Corbin, KY	Medium	64.3%	3.314	172	4.468%	8	3.849%	306
Lake City, FL	Small	64.1%	3.676	104	0.722%	120	4.088%	265
Manhattan, KS	Medium	63.8%	3.149	208	1.229%	87	4.361%	195
Omaha, NE	Large	63.6%	2.956	250	0.698%	123	4.729%	121
Roanoke, VA	Medium	63.3%	2.972	246	2.154%	45	4.323%	205
Jackson, MS	Medium	63.1%	3.340	162	-0.393%	228	4.804%	108
Hot Springs, AR	Medium	62.8%	3.955	75	-0.392%	227	4.352%	197
Albuquerque, NM	Large	62.5%	3.374	152	-1.773%	333	6.334%	14
Valdosta, GA	Medium	62.3%	3.287	176	1.478%	72	4.129%	253
Chicago, IL	Large	61.8%	3.124	214	0.046%	181	4.805%	107
Rapid City, SD	Small	61.8%	4.150	55	-0.723%	259	4.416%	188
Jackson, KY	Small	61.3%	3.351	159	1.124%	94	4.144%	250
Columbus, OH	Large	61.3%	2.790	290	0.137%	169	5.444%	44
Eufaula, AL	Medium	61.0%	3.629	112	0.110%	170	4.270%	222
Rocky Mount, NC	Medium	60.8%	2.950	252	1.041%	99	4.555%	157
El Paso, TX	Large	60.5%	3.265	180	-0.334%	219	4.761%	114
Scottsbluff, NE	Medium	60.3%	3.558	124	1.587%	67	3.712%	324
Winston-Salem, NC	Medium	60.0%	3.358	157	0.188%	160	4.349%	198
Ashland, WI	Medium	59.7%	3.549	126	-0.275%	211	4.458%	178
San Angelo, TX	Medium	59.5%	3.599	118	0.610%	129	4.020%	272
Greensboro, NC	Large	59.2%	3.239	192	0.387%	141	4.423%	186
Fort Smith, AR	Medium	59.0%	3.259	185	-0.906%	278	5.247%	59
Anniston, AL	Medium	58.7%	2.964	248	0.195%	157	4.719%	124
Columbia, MO	Medium	58.2%	3.579	120	-0.037%	190	4.279%	220
Paducah, KY	Small	58.2%	3.037	236	-0.610%	247	5.400%	47
Auburn, AL	Small	58.0%	2.906	265	2.801%	23	4.169%	243
Texarkana, TX	Medium	57.7%	3.372	153	-0.561%	243	4.632%	139

City	Size							
Moses Lake, WA	Small	57.5%	3.320	167	-0.577%	244	4.703%	128
Ada, OK	Medium	56.9%	3.245	189	0.702%	122	4.209%	230
Somerset, KY	Medium	56.9%	3.099	223	0.090%	177	4.625%	141
Chattanooga, TN	Medium	56.7%	3.189	202	-0.007%	188	4.573%	152
Fort Wayne, IN	Medium	56.4%	2.893	268	-0.084%	195	5.059%	80
Sarasota, FL	Large	56.2%	5.538	10	-0.003%	187	3.532%	347
Columbia, TN	Small	55.4%	2.816	287	2.393%	33	4.240%	226
Charlottesville, VA	Medium	55.4%	3.811	86	0.152%	166	3.904%	294
Santa Rosa, CA	Medium	55.4%	3.966	73	-1.043%	289	4.429%	184
Palm Bay, FL	Medium	55.2%	4.857	21	-0.687%	256	4.040%	270
Lake Charles, LA	Medium	54.7%	2.949	253	0.162%	165	4.696%	129
Claremont, NH	Medium	54.7%	4.131	57	-0.322%	216	4.019%	274
Brookings, OR	Medium	54.4%	4.416	39	-1.607%	327	4.437%	182
Lincoln, NE	Medium	54.1%	3.240	191	0.751%	117	4.175%	240
Huntsville, AL	Medium	53.9%	3.249	187	-0.046%	191	4.479%	172
Starkville, MS	Medium	53.6%	3.350	160	0.368%	143	4.148%	248
Tulsa, OK	Large	53.4%	3.470	143	-1.098%	294	4.758%	116
New Orleans, LA	Large	53.1%	3.125	213	-0.519%	239	4.835%	103
Virginia Beach, VA	Large	52.9%	3.096	224	-0.459%	236	4.859%	101
Columbus, IN	Small	52.6%	2.451	345	0.066%	179	5.541%	38
Corpus Christi, TX	Medium	52.4%	3.202	199	-0.876%	274	5.001%	92
Fayetteville, NC	Large	51.9%	3.015	238	0.176%	162	4.519%	165
Jonesboro, AR	Medium	51.9%	3.659	108	-0.955%	281	4.461%	176
Tuscaloosa, AL	Medium	51.6%	3.363	156	0.598%	131	3.962%	284
Altamont, OR	Small	51.3%	3.694	100	-0.619%	249	4.232%	228
Knoxville, TN	Large	51.1%	3.052	231	-0.724%	260	5.018%	88
Des Moines, IA	Large	50.6%	2.913	263	0.109%	171	4.598%	147
McComb, MS	Small	50.6%	3.753	94	-0.342%	220	4.068%	267
Eureka, CA	Small	50.3%	3.808	88	-0.838%	268	4.195%	233
Gastonia, NC	Medium	50.1%	2.758	299	0.943%	102	4.399%	191
Greenville, MS	Small	49.3%	3.606	115	1.180%	90	2.818%	390
Vicksburg, MS	Small	49.3%	3.496	139	0.289%	151	3.857%	305
Biloxi, MS	Medium	49.3%	3.092	226	-0.744%	263	4.823%	106
Sacramento, CA	Large	49.1%	3.418	148	-0.290%	212	4.182%	237
Tupelo, MS	Medium	48.8%	3.264	181	-1.605%	326	4.958%	94
Lynchburg, VA	Medium	48.6%	3.547	127	-0.095%	196	3.973%	283

City	Size						
Philadelphia, PA	Large	48.3%	3.145	210	0.004%	186	213
Mankato, MN	Medium	48.0%	2.699	309	0.970%	101	199
Bemidji, MN	Medium	47.8%	2.950	251	-0.125%	200	159
Detroit, MI	Large	47.3%	2.812	288	-0.721%	258	72
Beckley, WV	Medium	47.3%	3.804	89	-2.241%	360	169
Memphis, TN	Large	47.0%	2.830	285	-0.745%	264	69
Yakima, WA	Medium	46.8%	2.770	294	0.206%	156	170
Lexington-Fayette, KY	Large	46.5%	2.861	277	-0.054%	192	154
Fargo, ND	Medium	46.3%	2.926	261	-1.134%	299	67
McMinnville, TN	Small	46.0%	2.838	282	-0.924%	279	68
Gillette, WY	Small	45.8%	4.438	38	-0.903%	276	321
Shreveport, LA	Large	45.5%	2.982	244	-0.556%	242	150
Victoria, TX	Medium	45.0%	3.172	206	1.476%	73	358
Lubbock, TX	Medium	45.0%	3.118	216	-1.595%	325	96
Americus, GA	Medium	44.7%	2.936	257	0.100%	174	207
Ottumwa, IA	Small	44.5%	2.891	269	0.474%	136	234
Madison, WI	Medium	44.2%	2.773	293	-1.104%	296	51
Searcy, AR	Small	44.0%	3.474	142	-0.320%	215	285
Minot, ND	Small	43.7%	2.693	310	0.811%	111	224
Russellville, AR	Small	43.5%	3.372	154	-0.348%	222	271
Mitchell, SD	Medium	43.2%	3.409	150	0.624%	127	371
Grand Rapids, MI	Large	43.0%	2.453	342	-0.953%	280	28
Rice Lake, WI	Small	42.7%	3.662	107	-1.069%	290	254
Milwaukee, WI	Large	42.4%	2.632	317	-0.627%	251	86
Corsicana, TX	Medium	41.9%	3.173	205	-0.119%	199	257
South Augusta, GA	Medium	41.9%	3.105	220	-0.425%	232	209
Clarksdale, MS	Medium	41.7%	3.752	95	-0.542%	240	327
Houghton Lake, MI	Small	41.4%	3.526	132	-2.196%	359	173
Dubuque, IA	Small	41.2%	2.864	276	1.529%	69	319
Altus, OK	Medium	40.9%	3.535	130	-0.449%	235	303
Carbondale, IL	Medium	40.7%	3.049	232	0.895%	107	334
Henderson, KY	Small	40.4%	2.948	254	0.750%	118	307
Sterling, CO	Small	40.2%	3.990	69	-0.398%	229	381
Lakeland, FL	Medium	39.9%	3.544	128	-1.221%	307	245
Fort Knox, KY	Small	39.6%	2.930	260	-0.986%	285	138
Brownwood, TX	Small	39.4%	3.203	197	-1.194%	306	181

City	Size							
Tullahoma, TN	Small	39.1%	2.836	283	1.180%	91	3.808%	313
Pine Bluff, AR	Medium	38.9%	3.318	169	-2.793%	375	4.604%	144
Vidalia, GA	Medium	38.6%	3.147	209	0.612%	128	3.503%	352
Wichita, KS	Large	38.4%	2.896	266	-0.234%	208	4.284%	218
Sumter, SC	Medium	38.1%	2.763	298	1.520%	70	3.705%	326
St. Louis, MO	Large	37.9%	3.003	241	-1.251%	308	4.600%	145
Erie, PA	Large	37.6%	2.451	344	1.557%	68	3.955%	286
Dover, DE	Large	37.4%	3.631	111	-0.588%	245	3.525%	349
Great Falls, MT	Small	37.1%	3.747	96	-0.998%	286	3.718%	323
West Memphis, AR	Small	36.8%	2.860	278	1.047%	97	3.673%	333
Cincinnati, OH	Large	36.3%	2.579	325	-0.771%	265	4.732%	119
Laredo, TX	Medium	36.3%	4.244	48	-2.289%	362	3.879%	299
Kalamazoo, MI	Medium	36.1%	2.179	384	-0.355%	223	4.832%	104
Columbus, NE	Small	35.8%	3.159	207	0.298%	150	3.483%	354
Griffin, GA	Small	35.6%	2.963	249	1.193%	89	3.171%	374
South Bend, IN	Large	35.3%	2.447	346	-1.076%	291	5.073%	78
Gary, IN	Large	35.1%	2.835	284	-0.649%	254	4.460%	177
South Boston, VA	Small	34.8%	2.783	291	2.183%	43	3.001%	382
Cleveland, OH	Large	34.6%	2.766	296	-1.484%	319	4.846%	102
Aberdeen, SD	Small	34.3%	3.476	141	0.004%	185	2.790%	391
Appleton, WI	Medium	34.0%	2.433	347	-0.327%	217	4.557%	156
Lima, OH	Medium	33.8%	2.276	372	0.077%	178	4.480%	171
Goldsboro, NC	Medium	33.5%	3.059	230	-0.434%	233	4.092%	264
Monroe, WI	Small	33.3%	2.348	363	1.382%	77	3.925%	288
Elkhart, IN	Medium	33.0%	2.400	350	-2.446%	369	6.529%	10
Racine, WI	Medium	32.8%	2.409	349	-0.409%	230	4.579%	151
Marinette, WI	Medium	32.5%	3.122	215	-0.196%	207	3.845%	308
Sheboygan, WI	Medium	32.3%	2.123	388	0.247%	155	4.385%	192
Lansing, MI	Medium	32.0%	2.321	368	-0.904%	277	5.012%	91
Spencer, IA	Small	31.8%	3.657	109	-0.960%	283	3.574%	345
Wausau, WI	Medium	31.5%	2.540	328	-0.254%	209	4.343%	201
Parkersburg, WV	Medium	31.2%	2.882	273	-1.151%	302	4.531%	164
Gadsden, AL	Medium	31.0%	3.034	237	-1.399%	316	4.418%	187
Watertown, NY	Medium	30.7%	2.605	322	1.916%	54	3.247%	367
Cedar Rapids, IA	Medium	30.5%	2.485	336	-1.084%	292	4.760%	115
Pikeville, KY	Medium	30.2%	3.934	76	-5.376%	393	4.015%	275

City	Size							
Harrisonburg, VA	Small	30.0%	2.809	289	-1.590%	324	4.671%	134
Wabash, IN	Small	29.7%	2.625	319	0.022%	182	4.160%	246
Poughkeepsie, NY	Large	29.5%	3.343	161	-0.313%	214	3.162%	376
Galax, VA	Small	29.0%	2.883	272	0.376%	142	3.624%	340
Garden City, KS	Small	29.0%	3.134	212	-1.000%	287	4.115%	255
Talladega, AL	Small	28.7%	2.361	360	-0.447%	234	4.541%	162
Toledo, OH	Large	28.4%	2.262	374	-0.876%	273	4.763%	113
Newport News, VA	Medium	28.2%	2.885	270	-0.411%	231	4.095%	260
Redding, CA	Medium	27.9%	3.566	122	-4.229%	391	4.114%	256
Ft Leonard Wood, MO	Small	27.7%	3.578	121	-1.160%	303	3.544%	346
Abilene, TX	Medium	27.4%	3.451	145	-3.329%	383	4.147%	249
Greensburg, IN	Small	27.2%	2.782	292	-1.783%	334	4.565%	155
Bismarck, ND	Small	26.9%	3.066	229	-1.396%	315	4.176%	239
Evansville, IN	Medium	26.7%	2.664	313	-1.578%	323	4.589%	148
Bridgeport, CT	Large	26.4%	3.101	222	-1.371%	314	4.138%	251
Cumberland, MD	Medium	26.2%	2.983	243	0.016%	183	3.294%	363
Youngstown, OH	Large	25.9%	2.646	315	-0.135%	201	4.010%	277
Morgantown, WV	Medium	25.6%	3.109	218	-1.910%	344	4.184%	236
Lake Jackson, TX	Medium	25.4%	2.744	301	-0.388%	225	4.019%	273
Canton, OH	Large	25.1%	2.580	324	-1.286%	311	4.515%	166
Bartlesville, OK	Medium	24.9%	3.005	240	-0.301%	213	3.511%	351
Albany, GA	Small	24.6%	2.764	297	-1.742%	332	4.446%	180
Beaumont, TX	Medium	24.4%	3.093	225	-2.260%	361	4.247%	225
Roswell, NM	Small	24.1%	3.664	106	-2.434%	367	3.645%	339
Odessa, TX	Medium	23.9%	3.227	195	-2.055%	351	4.059%	268
Bloomington, IN	Medium	23.6%	2.733	302	-2.685%	373	4.628%	140
Harrisburg, PA	Large	23.4%	2.371	356	-0.620%	250	4.311%	212
Muncie, IN	Medium	23.1%	2.337	364	-1.500%	320	4.665%	136
Hagerstown, MD	Medium	22.9%	2.382	353	0.304%	147	3.732%	320
Mount Pleasant, MI	Small	22.6%	2.223	379	-1.944%	347	4.928%	97
Jacksonville, IL	Medium	22.3%	2.855	280	-0.856%	271	4.009%	278
Sioux City, IA	Medium	22.1%	2.489	335	-0.155%	204	3.916%	292
Dayton, OH	Large	21.8%	2.151	385	-1.351%	313	4.607%	142
Hutchinson, MN	Small	21.6%	2.850	281	-0.385%	224	3.660%	337
Reading, PA	Large	21.3%	2.454	341	-0.391%	226	4.013%	276
Kahului, HI	Large	21.1%	2.923	262	-0.331%	218	3.279%	364

City	Size							
La Crosse, WI	Medium	20.8%	2.627	318	-1.123%	298	4.232%	229
Yuma, AZ	Medium	20.6%	2.709	306	-1.675%	328	4.312%	211
Glasgow, KY	Medium	20.3%	2.722	304	-2.131%	357	4.423%	185
Charleston, WV	Medium	20.1%	2.946	255	-1.961%	349	4.171%	242
Iowa City, IA	Medium	19.8%	2.525	329	-0.738%	261	4.093%	263
Binghamton, NY	Medium	19.3%	2.116	389	0.903%	105	3.329%	361
Athens, OH	Small	19.3%	2.542	327	-0.742%	262	4.076%	266
Bloomington, IL	Medium	19.0%	2.220	381	-0.070%	193	3.976%	282
Plattsburgh, NY	Small	18.8%	2.768	295	0.098%	176	2.914%	385
Pampa, TX	Medium	18.5%	3.041	234	-1.117%	297	3.692%	329
Enid, OK	Small	18.3%	3.563	123	-2.095%	355	2.968%	383
Johnson City, TN	Medium	18.0%	2.726	303	-0.597%	246	3.740%	318
Bluefield, WV	Medium	17.8%	3.318	168	-3.600%	386	3.803%	314
Decatur, IL	Medium	17.5%	2.322	367	-1.100%	295	4.322%	206
Effingham, IL	Medium	17.3%	2.621	320	-0.848%	270	3.992%	281
Findlay, OH	Medium	17.0%	2.059	390	-1.138%	300	4.374%	193
State College, PA	Medium	16.7%	2.669	312	-1.836%	337	4.182%	238
Eau Claire, WI	Medium	16.2%	2.296	371	-1.183%	304	4.301%	215
Kokomo, IN	Medium	16.2%	2.472	338	-1.189%	305	4.156%	247
Florence, AL	Medium	16.0%	2.884	271	-1.900%	341	3.992%	280
Alton, IL	Medium	15.5%	2.640	316	-0.958%	282	3.899%	296
Graham, TX	Medium	15.5%	3.002	242	-1.251%	309	3.610%	343
Scranton, PA	Large	15.2%	2.893	267	-0.717%	257	3.178%	373
Meridian, MS	Small	15.0%	3.105	219	-1.849%	338	3.604%	344
Pittsburgh, PA	Large	14.7%	2.708	308	-1.084%	293	3.874%	301
Davenport, IA	Medium	14.5%	2.369	358	-0.661%	255	3.922%	290
Grand Island, NE	Small	14.2%	2.868	274	-0.636%	253	3.158%	377
Kankakee, IL	Small	13.9%	2.151	386	0.172%	163	3.455%	356
Lorain, OH	Medium	13.7%	2.137	387	-2.830%	376	4.599%	146
Wheeling, WV	Medium	13.4%	2.708	307	-0.878%	275	3.696%	328
Olean, NY	Medium	13.2%	2.432	348	-0.615%	248	3.784%	316
Worthington, MN	Small	12.9%	3.178	203	-3.056%	380	3.674%	332
Staunton, VA	Medium	12.7%	2.933	258	-1.731%	331	3.686%	330
Rockford, IL	Medium	12.4%	2.396	351	-1.902%	343	4.238%	227
Marshalltown, IA	Small	12.2%	2.199	382	0.099%	175	3.263%	366
Duluth, MN	Medium	11.9%	2.452	343	-1.800%	336	4.167%	244

City	Size					
Big Spring, TX	Small	11.7%	3.260	-2.639%	372	3.239%	369
Concordia, KS	Small	11.4%	3.305	-2.400%	366	2.908%	386
Saginaw, MI	Medium	11.1%	2.351	-3.524%	385	4.436%	183
Jackson, MI	Medium	10.9%	2.360	-1.788%	335	4.184%	235
Waterloo, IA	Medium	10.6%	2.712	-1.559%	321	3.836%	311
Altoona, PA	Medium	10.4%	2.607	-0.817%	267	3.516%	350
Owensboro, KY	Small	10.1%	2.265	-2.195%	358	4.320%	208
Portsmouth, OH	Medium	9.9%	2.248	-0.795%	266	3.876%	300
Modesto, CA	Large	9.6%	2.671	-1.285%	310	3.712%	325
Bakersfield, CA	Large	9.4%	2.480	-0.838%	269	3.621%	341
Great Bend, KS	Medium	9.1%	3.103	-2.091%	354	3.163%	375
Keene, NH	Small	8.9%	3.044	-2.461%	370	3.527%	348
Fresno, CA	Large	8.6%	2.371	-2.444%	368	4.198%	232
Fort Dodge, IA	Small	8.3%	2.967	-1.937%	346	3.193%	372
Willmar, MN	Small	8.1%	2.519	-1.949%	348	3.923%	289
Sunbury, PA	Medium	7.8%	2.230	-0.140%	202	2.821%	389
Union City, TN	Small	7.6%	2.375	-2.307%	363	4.136%	252
Terre Haute, IN	Medium	7.3%	2.754	-1.867%	340	3.684%	331
Mount Vernon, IL	Small	6.8%	2.368	-1.031%	288	3.670%	335
Hilo, HI	Small	6.8%	3.228	-8.268%	394	2.294%	394
Peoria, IL	Medium	6.6%	2.336	-1.676%	329	3.913%	293
Roanoke Rapids, NC	Small	6.3%	2.975	-1.966%	350	2.431%	393
Allentown, PA	Large	5.8%	2.509	-1.854%	339	3.723%	322
Chico, CA	Medium	5.8%	3.008	-4.011%	390	3.269%	365
Glendive, MT	Small	5.5%	2.906	-2.752%	374	3.234%	370
Richmond, IN	Small	5.0%	2.650	-1.722%	330	3.244%	368
Zanesville, OH	Medium	5.0%	2.240	-2.120%	356	3.998%	279
Rochester, MN	Medium	4.8%	2.471	-1.402%	317	3.309%	362
Olney, IL	Small	4.5%	2.510	-1.349%	312	3.130%	378
Burlington, IA	Small	4.3%	2.247	-1.922%	345	3.865%	302
Kirksville, MO	Medium	4.0%	2.829	-4.794%	392	3.478%	355
Williamsport, PA	Medium	3.8%	2.460	-2.063%	352	3.611%	342
Buffalo, NY	Large	3.5%	2.326	-2.308%	364	3.838%	309
Lafayette, IN	Medium	3.3%	2.378	-2.940%	377	3.832%	312
Mansfield, OH	Medium	3.0%	1.963	-2.073%	353	3.890%	297
Lexington, NE	Small	2.7%	2.857	-2.996%	379	2.862%	387

City	Size							
Albany, NY	Large	2.5%	2.576	326	-2.387%	365	3.379%	360
Huntington, WV	Medium	2.2%	2.512	331	-3.766%	388	3.649%	338
Quincy, IL	Small	2.0%	2.385	352	-2.547%	371	3.666%	336
Decorah, IA	Small	1.7%	2.508	334	-3.342%	384	3.502%	353
Blytheville, AR	Small	1.5%	2.011	392	-1.570%	322	2.835%	388
Syracuse, NY	Large	1.2%	2.314	370	-3.260%	382	3.418%	359
Galesburg, IL	Small	1.0%	2.056	391	-1.902%	342	3.111%	380
Steubenville, OH	Small	0.7%	2.221	380	-3.080%	381	3.450%	357
Amsterdam, NY	Small	0.5%	2.319	369	-3.708%	387	2.438%	392
Elmira, NY	Medium	0.2%	2.004	393	-2.967%	378	3.123%	379
Oneonta, NY	Small	0.0%	2.198	383	-3.868%	389	2.956%	384

[1] The Regional Entrepreneurship Index (REI) is the average of the combined relative rankings for the number of new firm births per 1,000 labor force, the average annual change in new firm births between 1990 and 2001, and the percent of firms growing rapidly between 1991 and 1996. The region with the highest average is assigned the rank of 100, and the relative rank of every other region is calculated as a percentage of that highest value.