



Prepared by:  
**Jill S. Taylor**  
Center for Economic Development  
Maxine Goodman Levin College of Urban Affairs  
Cleveland State University

Support provided by the  
**U.S. Department of Commerce,  
Economic Development Administration**

September 2006

# **WHAT MAKES A REGION ENTREPRENEURIAL?**

## **A REVIEW OF THE LITERATURE**

**Center for  
Economic  
Development**



2121 Euclid Avenue Cleveland, Ohio 44115  
<http://urban.csuohio.edu>

## TABLE OF CONTENTS

<b>Introduction .....</b>	<b>1</b>
<b>Regional Characteristics and New Firm Formation .....</b>	<b>2</b>
<b>Public Policy Approaches to Fostering Entrepreneurship.....</b>	<b>6</b>
Human Capital.....	6
Financial Capital .....	11
Tax and Regulatory Climate .....	12
Physical Infrastructure .....	14
Business Culture and Entrepreneurial Climate .....	15
<b>Conclusions.....</b>	<b>17</b>
<b>References.....</b>	<b>19</b>

## **WHAT MAKES A REGION ENTREPRENEURIAL? A REVIEW OF THE LITERATURE**

### **Introduction**

In recent years, there has been a growing focus on entrepreneurship as a principal source of economic growth. Many economic development practitioners and public policymakers are taking note of this, shifting attention and resources toward activities to support entrepreneurship. This reflects a broader shift toward strategies that spur growth from within (endogenous growth) rather than seeking economic gains from the outside (exogenous growth).

Pages (2004) credits three inter-related factors for the increased focus on entrepreneurship. He suggests that macroeconomic trends created conditions that were less conducive to success for large, capital-intensive corporations, thereby opening new market niches for newer, smaller, and more nimble market entrants. He also contends that the forces of globalization and technological development helped create an economy with greater reliance on rapid innovation and competition in less stable market environments. Finally, Pages argues that demographic shifts and changing industry practices severed the implicit bargain between employer and employees, and as the opportunity for secure lifetime employment dwindled, more people considered starting their own businesses.

Entrepreneurship is seen as key to job and wealth creation. Lichtenstein and Lyons (2001) go so far as to state that “the critical determinate of a region’s economic vitality is the quantity and quality of its entrepreneurs and how well they are matched to the market opportunities they pursue” (p. 4). If this is true, it raises the question “what makes a region entrepreneurial?”

This paper is narrowly focused on research that aims to identify regional characteristics that are consistent with high rates of entrepreneurship. It is not an exhaustive review of the literature relating to innovation and entrepreneurship. Innovation is viewed as a precursor to entrepreneurship and the academic literature often addresses the two topics in tandem. This paper recognizes the important relationship between innovation and entrepreneurship; however, it intentionally avoids an in-depth discussion of the factors that drive innovation, instead concentrating on conditions that may facilitate new firm formation. The first part of this paper reviews research on the impact of regional characteristics on new firm formation. The second section identifies public policy approaches to fostering entrepreneurship.

## **Regional Characteristics and New Firm Formation**

Research on entrepreneurship has taken many directions. There are bodies of work that focus on the personal characteristics and life experiences of entrepreneurs (McGrath, MacMillan & Scheinberg, 1998; Bird, 1993; Brockhaus, 1982), how entrepreneurs identify and seize upon market opportunities (Shane, 2005; Amit, Muller & Cockburn, 1995), factors that stimulate entrepreneurship within firms (Franco, 2005; Morris, Zahra & Schindehutte, 2000), and entrepreneurship stemming from research institutions (Lowe, 2001; Miner, et al., 2001). These bodies of research provide some insight as to why some regions generate more entrepreneurial activity than others but only speak to the issue on the periphery.

There is also a large body of literature that addresses the relationship of innovation and entrepreneurship to economic growth, but it tends to be more focused on sources of innovation (e.g., Audretsch, 1998; Drucker 1985). This literature does not directly address the question of why some regions may be innovative but not entrepreneurial. Entrepreneurship is just one vehicle for commercializing new products or technologies, or according to Acs, et. al. (2006), “entrepreneurship is one mechanism that converts knowledge into growth” (p.4). Feldman (2001) contends, “A distinction should be drawn between the conditions that support innovation and the conditions that support entrepreneurship. The two concepts are certainly related: entrepreneurship is one way in which innovation is realized as firms are formed to commercialize and advance new ideas. External environments and resources may make it easier for innovation to be realized but may not be sufficient to induce new firm formation, which is where the two concepts diverge” (p. 887).

There is a relatively small but growing body of research that examines the characteristics of regions in relation to entrepreneurial activity. In the early 1980s, Bruno and Tyebjee (1982) reviewed a number of studies and created an extensive list of environmental factors believed to be associated with entrepreneurship. These include venture capital availability, technically skilled labor force, proximity of universities, and availability of supporting services, among others. However, Bruno and Tyebjee concluded that much of the knowledge about environmental influence on entrepreneurial activity was based on anecdotal evidence, case histories, and folklore. They argued that the existing research lacked a theoretical perspective and reflected a number of methodological difficulties.

A study by Reynolds, Miller, and Maki (1993) takes a more empirical approach to examining regional characteristics affecting business vitality in the U.S. between 1980 and 1984. The study assessed the impact of 15 features of labor market areas across the country. These features included unemployment, career opportunities, industry mix, cost of factors of production, availability of production factors, efficient public infrastructure, access to customers

and clients, knowledge and R&D base, personal wealth, social status/diversity, population growth, size of economic base, economic diversity, national transportation access, and flexible employment policies. Multiple measures were selected to capture each of the 15 characteristics. The factors having the greatest impact on firm births were the presence of economic diversity (establishment size and occupational mix), population growth, greater personal wealth, and lower unemployment.

A special issue of *Regional Studies* published in 1994 made another important contribution to the literature. Research teams explored regional variation in new firm births in seven Western countries, including the U.S. (for a summary, see Reynolds, Storey & Westhead, 1994). They assessed the impact of seven processes that are believed to underlie new firm starts: demand; urbanization/agglomeration; unemployment; personal household wealth; small firms/ specialization; local political ethos; and government spending/policies. The researchers selected indicators for each of the seven processes depending on the availability of data in each country. The demand indicators included net population growth, increases in personal or household income or a growth in regional gross product. Urbanization/agglomeration indicators included population density, percentage of the population age 25 to 44, percentage of the workforce in managerial positions, percentage of population with formal occupational training or post-high school degrees, and presence of secondary or vacation housing. Unemployment indicators included level of unemployment and changes in unemployment rate. Household wealth indicators included household income, presence of owner-occupied housing, housing prices, and land prices. Small firms/specialization indicators included percentage of all firms that would be considered small, sector concentration, and percentage of workers in the major economic sectors. Local political ethos was measured by the extent of socialist voting patterns. Government spending/policies indicators included local spending on infrastructure and programs providing direct assistance to new and small firms.

Reynolds, Storey & Westhead (1994) reviewed and synthesized the findings from all studies included in the cross-national project. The first important finding was that regional characteristics explained a relatively high level of variance in firm births in all countries, with the exception of Italy. The specific effects varied somewhat for each country, however, there were many commonalities. Growth in demand was the most significant process in predicting firm births. Urbanization/agglomeration and the presence of small firms and economic specialization had a consistent positive effect on firm births. There was a weak positive effect on measures of personal household wealth. Government spending had no significant impact. Unemployment and political ethos produced mixed results. The researchers also found that the indicators behaved differently when predicting births within only the manufacturing sector.

Reynolds (1994) provides details of the study on the United States. He found that increased demand has a major effect on new firm births. Urbanization/agglomeration indicators had a lesser impact overall and the strongest impact on models that predicted firm births in the service sector. Unemployment indicators did not have a major impact, although Reynolds notes that this conflicts with other U.S. analyses. Personal household wealth was associated with higher firm birth rates in rural areas. The presence of small firms and economic specialization did not have a consistent impact across industry sectors or regions. Government spending did not appear to have a significant impact on firm births. Reynolds concluded that the influence of most factors included in the analysis is affected by the nature of the local labor market area and the economic sector under consideration.

In their summary article, Reynolds, Story, and Westhead explore the policy implications of the cross-national study, including whether efforts should be made to create uniform firm birth rates across regions, the ability of government to affect firm birth rates and what activities may have the greatest effect, and whether policies should target high-growth firms as opposed to small firms. They caution that attempts to reduce regional disparity in firm birth rates may require redistributive policies with substantial costs. They argue that government actions have limited impact on firm birth rates, however, they can have some influence by enhancing the capacity of all businesses to function effectively and making specific efforts to ease burdens on new firms. The challenge for government is to offset the disadvantages experienced in regions with lower levels of entrepreneurial activity. The authors also note that policies designed to facilitate firm births that do not take into account the types of firms being established may not lead to self-sustaining economic growth.

There have been other studies of new firm births in European countries, particularly the United Kingdom (e.g., Keeble, 1990; Georgellis & Wall, 1999; Mason, 1994). In recent years, there has been more research on factors that explain regional variation in entrepreneurship across the United States. Armington and Acs (2001) studied labor market areas across the U.S. to determine the role of human capital, training and education, and entrepreneurial environment on new firm formation. They found that population growth and industry density (number of establishments in relation to population) were positively associated with firm start-up rates, consistent with the theory that greater density promotes knowledge spillover and consistent with the findings of the cross-national study discussed earlier. Establishment size was negatively associated, indicating that regions with predominately smaller establishments have higher start-up rates than regions with more large establishments. Based on this finding, they conclude that regions that have restructured away from large manufacturing dominance have a higher start-up rate than those that have not. Armington and Acs determined that

regions with more highly educated populations will have higher firm start-up rates; however, they also found a positive relationship with the percentage of the population without a high school degree. They attribute this finding to the fact that the availability of cheap labor facilitates the start-up process for new firms, although additional research by Acs and Armington (2005) finds that an increase in the number of high school graduates tended to increase overall regional growth rates. The latter study also reports that new firm formation rate increases are associated with higher employment growth rates and greater business specialization, and regional differences in service firm formation rates largely depend on the educational requirements and the market served by the new firms. Specifically, it was determined that local levels of educational attainment primarily impact the firm formation rates of the types of firms that are normally founded by better-educated entrepreneurs and do not affect startup rates from those normally founded by individuals with less than a college degree.

These recent studies provide a new level of understanding of regional differences in firm formation. They offer a theoretical framework for studying regional variation in entrepreneurship and begin to identify those factors that appear to be associated with higher firm start-up rates. However, there is still more to be learned about why some U.S. regions develop entrepreneurial clusters while others do not and what policymakers can do to facilitate entrepreneurship. Many of the policy prescriptions found in the literature are still based on a review of resources available in entrepreneurial “hot spots.” This literature often fails to consider how these resources were developed and how these areas became hot beds for entrepreneurial activity. This approach fails to determine whether the characteristics found in such regions are a cause or a consequence of entrepreneurial growth.

Feldman (2001) contends that the conditions often talked about in the literature (venture capital, social capital, etc.) lag entrepreneurial growth rather than lead it. In her study of Washington D.C., Feldman found that increased entrepreneurial activity occurred in response to exogenous factors (underemployed skilled labor brought about by changes in federal employment policy coupled with new opportunities for the private sector to contract with the federal government and commercialize new technologies). Following that, the region developed supporting conditions that the literature associates with entrepreneurial environments. Feldman cautions that attempting to replicate characteristics associated with a fully functioning regional system “ignores the rich context, diversity of experience, uniqueness and adaptivity of regional systems” (p. 887).

Suchman, Steward, and Westfall (2001) offer a similar assessment, noting that “widespread entrepreneurship would seem to depend on a relatively rare conjunction of environmental conditions: resources must be plentiful, but at the same time, models for

identifying and capturing those resources must be clear. Such conditions are generally transitory, as environments pass from certainty to scarcity or from plenty to confusion” (p. 358). Lichtenstein and Lyons (2001) also suggest that regions are not successful at developing entrepreneurs because of the presence of services and funding but that services and funding are present because the regions are successful at developing entrepreneurs.

Understanding entrepreneurship in this light is essential, but it raises questions about the role of public policy in promoting entrepreneurship. Local policymakers have little influence over macro- and micro-economic trends, but this does not mean that entrepreneurship should be abandoned as an economic development strategy. Research may indicate that resources lag entrepreneurial development, but entrepreneurs stress the importance of these resources in helping them to develop their businesses.<sup>1</sup> This suggests that there is room for policy intervention. The following section explores several policy approaches for improving the entrepreneurial environment in a state or region.

## **Public Policy Approaches to Fostering Entrepreneurship**

This section draws upon a growing body of work that focuses on what state and local policymakers can do to support entrepreneurship. It is based largely on a body of literature that examines the resources present in areas with high levels of entrepreneurial activity and draws upon the observations of individuals who have worked extensively with entrepreneurs. The paper identifies five areas in which policymakers can direct efforts to increase entrepreneurial activity in a region: human capital, financial capital, tax and regulatory climate, physical infrastructure, and business culture and entrepreneurial climate. Each area is addressed in some detail and the discussion includes policy recommendations issued by researchers and experts in the field.

### *Human Capital*

Any discussion of entrepreneurship should begin with a discussion of the entrepreneur. New business formation requires talented people willing to take risks to implement an idea. Regions with high entrepreneurial activity often take two approaches to human capital development. One approach is to attempt to increase the pool of potential entrepreneurs by engaging educational institutions, investing in research, and promoting innovation and commercialization. The second approach focuses on providing support to existing

---

<sup>1</sup> This paper is being prepared in conjunction with an analysis of a survey of entrepreneurs in Northeast Ohio that focuses on the adequacy of resources to support new business development.

entrepreneurs by offering advice, education, and other services throughout the business development process.

Increasing the supply of entrepreneurs. If we were to review the literature that explores the personal traits of entrepreneurs, we might assume that entrepreneurs are born or that there is something inherent in an individual that drives him or her to innovate and not shy away from risk. However, there is an argument that entrepreneurs are not born but developed. Lichtenstein and Lyons (2001) caution that a region's supply of entrepreneurs cannot be taken for granted, but they assert that it is "not acceptable to argue that nothing can or should be done to change it" (p. 4). To change the supply of entrepreneurs in a region, policymakers must be willing to invest in research and development and education.

Geotz and Freshwater (2001) investigated the impact of financial and human entrepreneurial capital and ideas on entrepreneurial activity at the state level and confirmed that a larger pool of raw ideas and basic innovations is positively associated with entrepreneurial activity and found a positive interaction between ideas and human capital. Based on their results, they suggest that opportunities exist to expand entrepreneurship by increasing the human capital base of a state. Geotz and Freshwater argue that such an expansion will increase the effectiveness with which ideas are translated into entrepreneurial outputs.

Entrepreneurial growth is fueled by innovative ideas and, therefore, states and regions with high entrepreneurial activity often focus resources on programs or initiatives that encourage innovation. Investment in education and research in the physical and life sciences is often seen as the most effective way to seed the innovation that propels entrepreneurial growth companies. A 2002 report published by the National Commission on Entrepreneurship proposed an action agenda for policymakers that included increasing federal spending for research and development in the physical sciences in parallel with investments in life sciences; providing incentives for universities to use tech transfer to spinout entrepreneurial growth companies; and providing incentives to colleges and universities to produce more graduates in science and engineering. The commission argued that public policy is most effective when it invests in long-term institutional research and development that many businesses may not do on their own.

Although the report focused on federal policy intervention, the recommendations are relevant at the state and local levels. State and local policymakers may have limited resources to support large-scale research; however, they can help to build institutional research capacity by providing adequate support to institutions of higher education, developing special initiatives to encourage students to enter science and engineering fields, facilitating university-industry collaboration, and eliminating barriers to commercialization of research.

In a review of state policies and programs that support entrepreneurship, Kayne (1999) found that one area in which states are making substantial contributions to an entrepreneurial economy is through investment in and policies related to the utilization of intellectual capacity, primarily through state universities and colleges. A survey found that a number of states had increased university funding, created centers of excellence, provided cooperative funding, established commercialization entities, and revised policies on faculty research. For example, in the late 1990s, Texas increased the amount of money spent on research and directed the funding primarily to engineering schools and institutions that conducted health-related research. Hawaii increased faculty members' share of revenues from intellectual property licensing. Georgia established a public-private partnership that invests in promising researchers in a few strategic industries (biotechnology, telecommunications, and environmental technologies); three state universities and a state medical college participate in the partnership.

Van Looy, Debackere, and Andres (2003) refer to the dual role of universities in knowledge creation and knowledge diffusion and note that "both endogenous and exogenous innovation appear only to be successful when a country or region has at its disposal a critical mass of research and production competencies" (p. 210). Schramm (2005) emphasizes the importance of fostering university-industry collaboration, observing that university faculty located in a "cluster of commercialization" engage in a high level of industry consulting and collaboration and, as a result, are more adept at recognizing commercial opportunities.

In a 2003 article, Von Bargen, Freedman, and Pages identified the key ingredients that contribute to the American formula for growth. Providing research and development funding and investing in technically talented people were among those ingredients. The authors argue that the policy challenges of the future include increasing research and development funding in the physical sciences and ensuring that the domestic talent pool is expanded and the skills of individuals are effectively deployed.

University-based research plays a significant role in driving innovation and increasing entrepreneurial activity; however, the importance of the educational system is not limited to its research function. It is also recommended that educational institutions — at all levels — incorporate entrepreneurial education into their curricula. A report issued by the Hubert H. Humphrey Institute of Public Affairs (n.d.) suggests the need to promote entrepreneurial skills at all stages of the education system by implementing entrepreneurial skills training for students of all ages and by doing more to nurture the innovative person and encourage creativity. This view is echoed by the National Governor's Association (2004), which recommends building entrepreneurial readiness of students in grades K through 12 and offering entrepreneurship education at public universities.

Pages (2005) refers to a study conducted by the W.K. Kellogg Foundation that identifies key program offerings found in comprehensive entrepreneur development systems. Among the key offerings is entrepreneurship education — including the introduction of entrepreneurship concepts in K through 12 and more advanced adult education and training in community colleges and universities. Kayne (1999) stresses the need to understand the propensity of young adults to become entrepreneurs and educate them about starting a business before they lose interest due to a lack of understanding of the process.

Investment in education and research requires long-term commitment and an understanding that the pay-offs may not be realized for some time. However, it is precisely these forms of investment that allowed the U.S. to establish some dominance in the global economy and have allowed some regions of the country to experience high rates of economic growth.

Supporting existing entrepreneurs. The second approach to human capital development to increase entrepreneurial activity is to support the community's existing entrepreneurs. With the increased focus on entrepreneurship as a path for economic growth, there is a vast array of services available to entrepreneurs. According to Shapero (1984), policies aimed at developing the skills of the entrepreneur are the most effective way to increase entrepreneurship.

Lichtenstein and Lyons (2001) argue that land, labor, and capital are tangible assets that are easily duplicated by others because they can be purchased. However, the ability to invent and innovate is an intangible asset that must be cultivated. They contend that entrepreneurial hotbeds do not just attract or recruit entrepreneurs — they develop them. The authors maintain that support services are key to developing entrepreneurs; however, they believe the answer is providing better tailored services rather than simply providing more services. They suggest an entrepreneurial development system (EDS) with experts to assist with specific tasks at various stages of business development. The EDS would include a careful assessment of each entrepreneur, determining the level of skill along four dimensions: technical skills (ability to perform the key operations of the business); managerial skills (ability to organize and efficiently manage the operations); entrepreneurial skills (ability to identify market opportunities and capture those opportunities); and personal maturity (self-awareness, willingness and ability to accept responsibility, emotional development, and creative ability). Following a thorough assessment, the EDS would customize services to the individual's skill level, needs, and personal preferences.

The management skill of entrepreneurs is an issue also raised by Van Looy, Debackere, and Andries (2003). They assert that “high-tech venturing implies a number of specific challenges in the area of operational management” (p. 213). They refer to other studies that

have pointed to the need for high-tech entrepreneurial companies to strike a balance between scientific/technical ambitions and market developments and customer imperatives. Based on their study of the biotechnology industry, Deeds, et al. (1999) concluded that over-reliance on technical personnel in the management of an organization detracts from the product development process. They also found that the prior experience of the CEO in managing a commercial research facility enhances a firm's new product development capabilities. This study seems to support Lichtenstein and Lyons' contention that customized skill training is important to the success of entrepreneurial growth companies.

Another premise of Lichtenstein and Lyons' proposed entrepreneurial development system is that it should consist of two interlocking subsystems — a system for developing entrepreneurs and a system for managing assistance providers. A common complaint among both those who seek assistance and those who provide it is that there is too much confusion about where entrepreneurs should go for help. Within a region, there are often numerous organizations that claim to provide services for entrepreneurs. The report issued by the Hubert H. Humphrey Institute of Public Affairs (n.d.) encourages improved access and delivery for government support programs. It states, "Although public officials are increasingly making efforts to assist and promote entrepreneurship activity, their potential good effects are compromised by inadequate organizational cultures and structures. Programs and networks to assist entrepreneurs are often hard to find, and multiple points of contact make the search for help more difficult" (p. 13).

Pages (2005), reaches a similar conclusion, arguing that programs often fail to meet the needs of entrepreneurs, not because they are poorly designed, but because they "exist within a crazy quilt of programs, initiatives, and support efforts" (p. 4) that are difficult to access and not user-friendly. Pages recommends an entrepreneur support system with "no wrong door" — every part of a region's small business support network would be able to provide an initial assessment of the entrepreneur's skills and needs and identify the best place to provide the needed services. The system proposed by Pages would link all relevant service providers, operate according to common procedures, and offer a customized and comprehensive set of public and private services for entrepreneurs. He contends that business owners often receive the services available rather than the services needed.

In most parts of the country, there is an abundance of services available to entrepreneurs to assist them in starting and growing their businesses. What appears to be lacking is a more individualized and coordinated approach to service delivery. A review of the literature suggests that regions seeking to increase entrepreneurial activity should adopt

programs that provide a thorough assessment of the specific needs of each entrepreneur and address fragmented service delivery.

### *Financial Capital*

Regions that nurture entrepreneurs generally have a strong network of venture capitalists and angel investors. Although many entrepreneurs rely on debt financing to start their businesses, equity capital provides greater opportunity for growth (National Commission on Entrepreneurship, 2002; Drabsenstott, n.d.).

Based on a survey of state programs to support entrepreneurship, Kayne (1999) found that the overwhelming majority of state financial assistance programs were in the form of loan guarantees, loan participations, and direct loans. Fewer than 10 percent of the programs involved direct or indirect equity investments. Kayne contends that equity capital is the lifeblood of entrepreneurs, but public policy is focused on debt financing. A more recent review of financing programs (Pages, 2004) indicates that states are beginning to move beyond the traditional focus on debt finance, providing funds directly to growing companies through state-run entities or privately managed investment vehicles.

The National Commission on Entrepreneurship (2002) also suggests that equity capital is often necessary for entrepreneurs to move beyond the start-up stage. In a 2004 report, the National Governor's Association (NGA) recommended that state policymakers not only address the need for equity versus debt capital but also identify diverse sources of equity capital. The NGA suggests that an over-emphasis on traditional venture capital can work against economic development goals because company founders relinquish a level of ownership and control and may be forced to give in to investors' desire to relocate the business as it matures.

The Hubert H. Humphrey Institute of Public Affairs (n.d.) suggests that states adopt a portfolio approach to venture financing and stresses that expectations of returns should be realistic. The report raises the point that government intervenes when there is a market failure — in the case of supporting entrepreneurship, this means providing financing for high risk projects. Because of this, it is not realistic to expect the same returns from public financing that would be expected from venture capital investment.

The availability of funding for various stages of business development is as important as the availability of diverse sources of funding. The NGA encourages states to develop mechanisms to fund company formation in the very early stage (seed capital), asserting that small increments of state support can be effective in getting companies to the point where they can attract private support. Although seed capital may be important, several researchers (Pages, 2005; Von Bargen, Freedman, Pages, 2003; Kayne, 1999) have also identified a capital

gap for companies that have moved beyond the start-up stage but are not yet able to secure venture capital. They report that entrepreneurs often find it difficult to attract investment between \$300,000 and \$3 million — the level of investment needed to move beyond the start-up stage and grow a company enough to capture the interest of venture capitalists who seek larger scale investments. According to Kayne, angel investors can play a big role in meeting this gap. Kayne also recommends working with entrepreneurs to address investor concerns about business planning and management, finding that capital readiness is sometimes a greater problem than the availability of capital.

A report issued by the NorTech Early Stage Capital Task Force (2005), which focused on capital needs of entrepreneurs in Northeast Ohio, also stresses the importance of financing options for all phases of business development. The task force developed an “early stage capital continuum” that identifies both the specific financing needs and potential sources of funding along all stages of the continuum. The model recognizes that the ability to attract investors and the size of the investments needed vary significantly as an entrepreneur moves through the continuum.

### *Tax and Regulatory Climate*

The tax and regulatory climate in a state affects the ability of an entrepreneur to attract investment and grow the business. These policies are generally formulated at the federal and state level; however, local leaders can influence tax and regulatory reform. Some regions may be home to more start-ups, in part, because their states have adopted policies that are more favorable to entrepreneurs.

In recent years, many states have initiated tax and regulatory reform in an effort to help businesses, however, research suggests that taxes, regulations, and public bureaucracies still represent a major obstacle for all businesses and entrepreneurs in particular (National Governor’s Association, 2004; Hubert. H. Humphrey Institute of Public Affairs, n.d.). The National Governor’s Association (NGA) stresses that an outdated system of business permitting and reporting around financial, environmental, unemployment insurance, and other requirements affect all businesses and diminish a state’s competitiveness but disproportionately affect growth companies. Newly established companies are less likely to have the resources needed to respond to requirements and may lack personnel with expertise in compliance. The NGA report argues that excessive regulation can discourage would-be entrepreneurs from starting a business or may lead them to consider a jurisdiction with less burdensome regulations. The report contends that “the most burdensome regulations typically are those that require interaction with multiple agencies to complete a single task, those that impose new

burdens on companies when they begin hiring employees, and those that are not transparent and navigable easily by lay persons” (p. 11). It is argued that simplifying regulatory compliance and registration burdens can determine the survival and retention of a state’s growth companies.

Kayne (1999) provides additional support for this claim, arguing that “states — through their laws, regulations, investments, and programs — have considerable impact on where entrepreneurs choose to establish new enterprises and the probability that those enterprises will succeed” (p. 2). He notes that states have taken a more macro-economic approach to tax and regulatory policy, which should help companies as they mature, but policy has not focused on the needs of entrepreneurs during the start-up stage. Pages (2005) makes a similar argument, noting that “state and local government officials regularly laud the contributions of small businesses, yet many of the benefits of public policy decisions (e.g., tax incentives, regulatory relief, training support) go exclusively to large corporations” (p. 1).

Research supported by the Small Business Administration (Crain, 2005) provides evidence that small businesses bear a disproportionate share of the federal regulatory burden. Crain found that this is particularly true within the manufacturing sector, where the compliance cost per employee for small manufacturers is at least double the compliance cost for medium and large firms. The study also concluded that environmental and tax compliance regulations are the main cost drivers in determining the severity of the disproportionate impact on small firms.

The NGA report recommends that states “get out of the way” through regulatory reform and streamlining. It suggests putting regulatory and licensing processes online, using one-stop business and licensing models, and eliminating regulations that impede universities and public entities from owning equity in for-profit ventures. The report indicates that several states have begun to look at regulatory reform, with many focusing on review and oversight of rules, streamlining of regulations and procedures, and economic impact analysis of new rules. For example, the state of Washington has adopted a one-stop business registration and licensing model through its Unified Business Identifier offices, where a single form can be obtained to apply for all relevant business licenses. New York implemented a central permitting assistance service to help with large projects that require the involvement of multiple agencies. Several states have adopted policies that require an impact assessment of proposed rules or regulations to determine their effect on businesses. Pages (2004) also notes that several states have adopted a model of regulatory reform based on one developed by the Small Business Administration in 2002.

Tax reform can affect the ability of an entrepreneur to attract early-stage investment and the ability to grow a company over time. The National Commission on Entrepreneurship (2002) recommended that the federal government address the early-stage capital gap by using tax policy, securities regulation, and pension law to increase the pool of investors willing to consider early-stage investments in entrepreneurial companies. The National Governor's Association report suggests that states can also play a role in encouraging early-stage investment by providing tax credit incentives and financial backing for angel investors. The NGA contends that by encouraging angel investment, states not only address the early-stage capital gap but also long-term economic development goals. It maintains that angel investors are usually local or regional investors and tend to be more rooted in the state's business community and, therefore are less likely to encourage companies to move out of state.

Pages (2004) indicates that several states have adopted this approach by offering substantial tax credits to investors. He states that the credits typically range from 20 to 30 percent of the investment value but some states provide a 50 percent credit. He notes that Hawaii provides a 100 percent credit for investments in high-technology businesses. Pages also writes that several states offer some form of tax incentive for investments into a business or seed capital fund. Kayne (1999) cites examples of states reforming tax policies that apply to businesses in addition to individual investors. Connecticut adopted tax provisions that allow new companies to recoup some of their initial investment by selling unused research and development tax credits back to the state and by extending the period of time that small companies have to recover losses they may have incurred during their initial years of operation.

### *Physical Infrastructure*

Reliable infrastructure is important to the success of all businesses, but particularly important to new and growing businesses. Von Bargaen, Freedman, and Pages (2003) credit federal policy with establishing the "robust and dependable" infrastructure needed to grow the national economy in the last half century. This includes the interstate highway system, airports and seaports, and telecommunications systems. Businesses must be able to efficiently move products and transmit information to be competitive. For new businesses trying to establish themselves in the market, the ability to quickly respond to consumer demand is critical to their growth and survival.

If superior physical infrastructure differentiates the U.S. from other countries, it may be presumed that it also differentiates regions within the U.S. Regions that invest in transportation systems, water and sewer systems, and broadband capacity will likely have an advantage over those regions with insufficient or outdated infrastructure. For similar reasons, entrepreneurs

located in metropolitan regions often have an advantage over those located in rural areas. Rural areas have more developable land but may lack a state-of-the-art communications infrastructure or have poor access to highways. The importance of telecommunications systems continues to grow as companies become more dependent upon technology in their day-to-day operations. The National Commission on Entrepreneurship (2002) identified broadband deployment as the next phase of critical infrastructure. The commission stressed the need to develop a dependable telecommunications system that is available to businesses at a reasonable cost.

Physical infrastructure also includes facilities in which entrepreneurs can establish and grow their businesses. Incubators can play an important role in the success of start-up companies. They can significantly lower costs associated with rent, personnel, equipment, and other overhead expenses, allowing new businesses to direct more resources to product development and marketing. Additionally, incubators generally provide support services to entrepreneurs, including managerial advice and assistance in securing financing. Incubators also provide entrepreneurs with greater opportunity to share lessons and experiences with others who are trying to establish businesses. The National Governor's Association (2004) suggests that these benefits exceed the cost-saving benefits and recommends that states be the catalyst and serve as partners in local or regional incubation strategies.

Finally, a region's physical infrastructure includes its institutions and amenities. Quality schools, strong colleges and universities, superior cultural organizations, and abundant recreational facilities are believed to be important infrastructure that supports all businesses but are especially valuable to start-ups and growing companies (VonBargen, Freedman, Pages, 2003). They make a region more attractive to entrepreneurs and workers, thereby increasing initial entrepreneurial activity as well as long-term success.

### *Business Culture and Entrepreneurial Climate*

Entrepreneurial climate is among the most frequently mentioned factors believed to affect entrepreneurial activity, yet it may be the most difficult to define and measure. It refers to a community's openness to new ideas and willingness to take risks and the extent to which entrepreneurs are recognized, appreciated, and supported. Entrepreneurial climate includes the political environment, educational system, and the financial and corporate sector.

According to Drabenstott (n.d.), a community's entrepreneurial culture is defined by its tolerance of failure, celebration of risk-taking and success, and whether social values constrain emerging technologies. Van Looy, Debackere, and Audries (2003) maintain that regional cultures "characterized by openness, informal networks and interactions, and a willingness to

take risks facilitate innovative entrepreneurship” (p. 226). Goetz and Freshwater (2001) contend that entrepreneurial climate determines the effectiveness or efficiency of the process that translates raw ingredients into entrepreneurial activity.

Kayne (1999) cites Kentucky as an example of a state that has articulated the goal of creating an entrepreneurial economy by recognizing multiple aspects of an entrepreneurial climate. Kentucky’s stated objectives are: changing the culture from one that develops employment skills to one that develops the necessary skills to build new businesses; creating an atmosphere of entrepreneurship throughout the educational system for kindergarten through post-secondary institutions; and developing knowledge and skills to deploy technology resources in high-growth businesses. Van Looy, Debackere, and Audries (2003) argue that if governments can take supporting measures in the interest of a more favorable climate, a more “entrepreneurial” attitude is demanded of the knowledge centers and firms themselves.

Lichtenstein and Lyons (2001) also recognize the importance of changing attitudes within the business community. They propose an entrepreneurial development system that focuses not only on individual entrepreneurs but also on creating an “entrepreneurial community.” They argue that the client in enterprise development should be the entire business community rather than individuals or particular groups of entrepreneurs. Shapero (1984) notes that the economic and political environments play a crucial role in the survival and growth of new businesses. Specifically, he found that the economic environment strongly influenced decisions by the financial community. He determined that financial people in growing cities were more likely to take an interest in new and different companies than those in cities that weren’t growing. Shapero concluded that growing cities are denoted by an orientation toward success rather than an interest in hedging against failure. In stagnating cities, investors were not only more reluctant but also structured loans and investments for maximum security in case of failure.

More than 20 years ago, Bruno and Tyebjee (1982) found that a receptive population and the presence of experienced entrepreneurs were two factors often cited by other researchers as essential to creating an environment that supports entrepreneurship. Although it is a form of circular logic to say that successful entrepreneurs are needed to create an environment where entrepreneurs can succeed, it supports the theory that regions must achieve a critical mass of entrepreneurial activity before the benefits are widely realized.

A survey of entrepreneurs in Arizona (Power and Hill, 2002) provides additional evidence of the importance of creating a receptive business climate for entrepreneurs. Among the top five priorities for entrepreneurs were networking, business leadership involvement in building the state’s entrepreneurial image, and the presence of more corporate headquarters.

(Access to capital and education also ranked within the top five priorities identified by entrepreneurs.) Networks for entrepreneurs are often cited as being critical to building a strong entrepreneurial climate. The report issued by the Hubert H. Humphrey Institute of Public Affairs (n.d.) argues that organizing networking opportunities is a key role of government, given the existence of public goods and market failure. It contends that networks are important to entrepreneurs for sharing experiences, bouncing ideas off each other, gaining useful contacts, and collaborating on new initiatives. The National Commission on Entrepreneurship (2002) also recommended that policymakers “seed social and other support infrastructure institutions, like entrepreneurial networks, in regions and communities of the country where the opportunity for entrepreneurial expansion is great and where rates of entrepreneurial activity are unacceptably low” (p. 8).

Some experts (Pages, 2004) also recommend that communities simply recognize entrepreneurs by establishing annual awards or organizing events to celebrate successful entrepreneurs. These approaches are relatively easy to implement but send a signal that entrepreneurs are valued and appreciated for their contributions to the region.

## **Conclusions**

There is a growing body of literature concerning the impact of regional characteristics on entrepreneurial activity. Although the research results vary based on the selection of indicators, time frame being studied, and other methodological issues, the common finding is that macro- and micro-economic trends have a considerable impact on new firm formation. However, regions are distinct, dynamic, complex economic systems that respond differently to macro- and micro-level forces. This makes it difficult to generalize about regional factors that influence entrepreneurship and formulate an appropriate policy agenda. Yet, this paper highlights several approaches that have been endorsed by many experts in the field. The conditions that are frequently cited as fostering entrepreneurship may be more a consequence of entrepreneurial activity than a cause, however, the suggested approaches may, at the very least, eliminate barriers and encourage entrepreneurship.

Further research is needed to develop a more complete understanding of what makes a region entrepreneurial. There is still a limited understanding about what conditions lead some regions to develop entrepreneurial clusters. Furthermore, there is more that can be learned about why some regions may be innovative but not entrepreneurial.

The role of entrepreneurship in economic growth is another issue that needs further research. It is generally accepted that higher rates of entrepreneurial activity translate to higher rates of economic growth. Acs, et. al. (2006) challenge this assumption, noting that

entrepreneurial activity may be endogenous to growth. That is, entrepreneurial activity may be more prevalent during periods of economic growth; therefore, it may be more accurate to attribute increased entrepreneurial activity to economic growth than to attribute economic growth to increased entrepreneurial activity.

## References

- Acs, Z., & Armington, C. (2005). *Using Census BITS to Explore Entrepreneurship, Geography, and Economic Growth*. Small Business Administration Office of Advocacy. Retrieved July 8, 2006 from <http://www.sba.gov/advo/research/rs248tot.pdf>
- Acs, Z., Audretsch, D.B., Braunerhjelm, P. & Carlsson, B. (2006). *Growth and Entrepreneurship: An Empirical Assessment*. Centre for Economic Policy Research Discussion Paper No. 5409. Retrieved June 15, 2006 from SSRN: <http://ssrn.com/abstract=893068>
- Amit, R., Muller, E. & Cockburn, I. (1995). Opportunity Costs and Entrepreneurial Activity. *Journal of Business Venturing*, 10, 95-106.
- Armington, C. & Acs, Z. (2001). The Determinants of Regional Variation in New Firm Formation. *Regional Studies*, 36, 33-45.
- Audretsch, D.B. (1998). *Agglomeration and the Location of Innovative Activity*. London: Centre for Economic Policy Research.
- Bird, B.J. (1993). Demographic Approaches to Entrepreneurship: The Role of Experience and Background. In J.A. Katz & R.H. Brockhaus, Sr. (Eds.), *Advances in Entrepreneurship, Firm Emergence, and Growth, Volume I* (pp. 11-48). Greenwich, CT: JAI Press Inc.
- Brockhaus, R.H. (1982) The Psychology of the Entrepreneur. In C. Kent, D. Sexton, & K. Vesper (Eds.), *Encyclopedia of Entrepreneurship* (pp. 39-56). Englewood Cliffs, NJ: Prentice-Hall Inc.
- Bruno, A.V. & Tyebjee, T.T. (1982). The Environment for Entrepreneurship. In C. Kent, D. Sexton, & K. Vesper (Eds.), *Encyclopedia of Entrepreneurship* (pp. 288-315). Englewood Cliffs, NJ: Prentice-Hall Inc.
- Crain, W.M. (2005). *The Impact of Regulatory Costs on Small Firms*. Small Business Administration Office of Advocacy. Retrieved July 6, 2006 from <http://www.sba.gov/advo/research/rs264tot.pdf>.
- Deeds, D.L., DeCarolis, D, & Coombs, J. (1999). Dynamic Capabilities and New Product Development in High Technology Ventures: An Empirical Analysis of New Biotechnology Firms. *Journal of Business Venturing*, 15, 211-229.
- Drabenstott, M. (n.d.) *Top Ten Ways to Create an Entrepreneurial Climate*. Center for the Study of Rural America, Federal Reserve Bank of Kansas City.
- Drucker, P.F. (1985). *Innovation and Entrepreneurship: Practice and Principles*. New York, NY: Harper & Row.
- Feldman, M.P. (2001). The Entrepreneurial Event Revisited: Firm Formation in a Regional Context. *Industrial and Corporate Change*, 10 (4), 861-891.
- Georgellis, Y. & Wall, H. (1999). *What Makes a Region Entrepreneurial? Evidence from Britain*. Federal Reserve Bank of St. Louis Working Paper 1999-099A. Retrieved June 21, 2006 from <http://research.stlouisfed.org/wp/1999/99-009.pdf>
- Goetz, S.J. & Freshwater, D. (2001). State-Level Determinants of Entrepreneurship and a Preliminary Measure of Entrepreneurial Climate. *Economic Development Quarterly*, 15 (1), 58-70.
- Kayne, J. (1999). *State Entrepreneurship Policies and Programs*. Kauffman Center for Entrepreneurial Leadership, Ewing Marion Kauffman Foundation. Retrieved May 5, 2006 from [http://research.kauffman.org/cwp/ShowProperty/webCacheRepository/Documents/KCEL\\_StateEntrepreneurship\\_1999.pdf](http://research.kauffman.org/cwp/ShowProperty/webCacheRepository/Documents/KCEL_StateEntrepreneurship_1999.pdf)

- Keeble, D. (1990). Small Firms, New Firms and Uneven Regional Development in the United Kingdom, *Area* 22, 234-45.
- Lichtenstein, G.A. & Lyons, T.S. (2001). The Entrepreneurial Development System: Transforming Business Talent and Community Economies. *Economic Development Quarterly*, 15 (1), 3-20.
- Lowe, R.A. (2001). The Role and Experience of Start-Ups in Commercializing University Inventions: Start-Up Licensees at the University of California. In Libecap, G. (Ed.), *Entrepreneurial Inputs and Outcomes: New Studies of Entrepreneurship in the United States, Volume 13* (pp.189-222). New York, NY: Elsevier Science Ltd.
- Mason, C. (1994). Spatial Variations in Enterprise: The Geography of New Firm Formation. In R. Burrows (Ed.), *Deciphering the Enterprise Culture: Entrepreneurship, Petty Capitalism, and the Restructuring of Britain*. London: Routledge.
- McGrath, R.G., MacMillan, I.C. & Scheinberg, S. (1998). Elitists, Risk-Takers, and Rugged Individualists? An Exploratory Analysis of Cultural Differences Between Entrepreneurs and Non-Entrepreneurs. In S. Birley (Ed.), *Entrepreneurship*. Burlington, VT: Ashgate Publishing Co.
- Miner, A.S., Eesley, D.T., Devaughn, M. & Rura-Polley, T. (2001). The Magic Beanstalk Vision: Commercializing University Inventions and Research. In C. Bird Schoonhoven & E. Romanelli (Eds.), *The Entrepreneurship Dynamic*. Stanford, CA: Stanford University Press.
- Morris, M.H, Zahra, S.A., & Schindehutte, M. (2000). Understanding Factors that Trigger Entrepreneurial Behavior in Established Companies. In Libecap, G (Ed.), *Entrepreneurship and Economic Growth in the American Economy, Volume 12* (pp. 133-159). New York, NY: Elsevier Science Ltd.
- National Commission on Entrepreneurship (2002). *American Formula for Growth: Federal Policy and the Entrepreneurial Economy, 1958-1998*. Retrieved May 18, 2006 from <http://www.publicforuminstitute.org/nde/sources/reports/americanformula.pdf>
- National Governor's Association, Center for Best Practices. (2004). *A Governor's Guide to Strengthening State Entrepreneurship Policy*. Retrieved June 1, 2006 from <http://www.nga.org/Files/pdf/0402GOVGUIDEENTREPRENEUR.pdf>
- NorTech Early Stage Capital Task Force. (2005). *Towards a Self-Sustaining Venture Capital Continuum in Northeast Ohio*. Retrieved July 7, 2006 from [http://www.nortech.org/Docs/NorTech%20ESCTF%20Report%2028%20SEP%2005%20\(2\).pdf](http://www.nortech.org/Docs/NorTech%20ESCTF%20Report%2028%20SEP%2005%20(2).pdf)
- Pages, E.R. (2005). Building Systems for Entrepreneur Support. *Economic Development America*. U.S. Department of Commerce, Economic Development Administration. Retrieved May 23, 2006 from <http://www.eda.gov/EDAmerica/winter2005/index.html>
- Pages, E.R. (2005). *Besides Capital, What Else?* Key Building Blocks for Building Businesses. Accessed May 17, 2006 from <http://www.entreworks.net/library/reports/besidesCapital.pdf>
- Pages, E.R. (2004). *What's so New about New Entrepreneurship Policies? State Government Initiatives to Foster New Venture Creation*. Retrieved May 23, 2006 from <http://www.entreworks.net/whatsnew/04/hhhstateentrep.pdf>
- Power, D. and Hill, B. (2002). Arizona Entrepreneurs: Critical Factors to Success. *Profit Dynamics*. Retrieved May 17, 2006 from <http://www.capital-connection.com/arizona-entrepreneurs-1.html>
- Reynolds, P. (1994). Autonomous Firm Dynamics and Economic Growth in the United States, 1986-1990. *Regional Studies*, 28 (4), 429-442.

Reynolds, P.D., Miller, B. & Maki, W.R. (1993). Regional Characteristics Affecting Business Volatility in the United States, 1980-4. In C. Karlsson, B. Johannisson & D. Storey (Eds.), *Small Business Dynamics: International, National and Regional Perspectives* (pp. 78-116). New York, NY: Routledge.

Reynolds, P., Storey, D.J. & Westhead, P. (1994). Cross-National Comparisons of the Variation in New Firm Formation Rates. *Regional Studies*, 28 (4), 443-456.

Schramm, C. (2005). The Importance of Networks and Capacity Building in Technology Transfer. *Economic Development America*. U.S. Department of Commerce, Economic Development Administration. Retrieved May 23, 2006 from <http://www.eda.gov/EDAmerica/winter2005/index.html>

Shane, S.A. (2005). *Finding Fertile Ground: Identifying Extraordinary Opportunities for New Ventures*. Upper Saddle River, NJ: Wharton School Publishing.

Shapero, A. (1984). The Entrepreneurial Event. In C.A. Kent (Ed.), *The Environment for Entrepreneurship* (pp. 21-40). Lexington, MA: D.C. Heath and Company.

State and Local Policy Program, Hubert H. Humphrey Institute of Public Affairs. (n.d.). *Knowledge Clusters and Entrepreneurship as Keys to Regional Economic Development*. Retrieved May 25, 2006 from <http://www.entreworks.net/library/reports/KnowledgeClustersFinalReport.pdf>

Suchman, M., Steward, D., and Westfall, C. (2001). The Legal Environment of Entrepreneurship: Observations on the Legitimation of Venture Finance in Silicon Valley. In C. Bird Schoonhoven & E. Romanelli (Eds.), *The Entrepreneurship Dynamic: Origins of Entrepreneurship and the Evolution of Industries* (pp. 349-382). Stanford, CA: Stanford University Press.

Van Looy, B., Debackere, K. & Andries, P. (2003). Policies to stimulate regional innovation capabilities via university-industry collaboration: an analysis and an assessment. *R&D Management*, 33 (2), 209-229.

Von Barga, P., Freedman, D. & Pages, E.R. (2003). The Rise of the Entrepreneurial Society. *Economic Development Quarterly*, 17 (4), 315-323.