

The Emergence of Entrepreneurship Policy

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ABSTRACT. Since the 1980s, many regulatory agencies were either downsized or closed and waves of publicly owned enterprises were privatized. Some scholars interpret this as signaling the retreat of government intervention. We suggest, however, that rather than retreating, public policy towards business is undergoing a profound shift. Specifically, a new set of policies designed to promote entrepreneurial activity has come to the forefront, that focuses on enabling the startup and viability of entrepreneurial firms rather than constraining existing enterprises.

1. Introduction

Government intervention has been a constant reality shaping the business environment throughout U.S. history (Chandler, 1977). Since as far back as the late 1800s, public policy towards business has been preoccupied with harnessing the market power of large corporations through a triad of policy instruments including regulation, antitrust and government ownership. The 1980s, however, ushered in the downsizing or closing of many regulatory agencies including the Civil Aeronautics Board, the Interstate Commerce Commission and the Federal Trade Commission.

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The privatization of scores of previously publicly owned enterprises also occurred. To some this may have appeared to be a signal of the retreat of government intervention, but in this paper we suggest a very different view.

The argument we will make is that a profound shift in government policies toward business is occurring, and a new policy agenda designed to promote entrepreneurial activity is coming to the forefront. By contrast to traditional policy instruments that worked primarily to constrain big business, contemporary policy instruments or what we will refer to as entrepreneurial policies, are enabling in nature and center on new and small businesses. Additionally, traditional policy instruments were generally implemented at the federal level. Entrepreneurship policies are implemented at all levels of government and are growing in utilization warranting greater attention and understanding than is currently available. This paper hopes to fill this gap in understanding.

The order of this paper will consist of a brief historical description of the role of public policy towards business, followed by a theoretical framework explaining the factors causing government intervention and the shift to the new paradigm. Several descriptions of entrepreneurship policies will be provided.

2. Theoretical framework

2.1. The historical context

Prior to the middle of the nineteenth century, production was undertaken primarily in small-scale craft establishments that often were family owned. The minimum efficient scale (MES), or smallest level of output where the minimum average cost was attained, was low generally and involved only a handful of few employees. Towards the turn of



the century, however, large-scale production rendered small firms more or less inherently inefficient (Chandler, 1977). The viability of small-scale family enterprises was sufficiently jeopardized through the advent of large corporations and accompanying managerial revolution.

From the American Industrial Revolution, the corporation emerged as the most efficient instrument of resource management. The organizational structure of the modern corporation post the U.S. Civil War birthed a new managerialism that excelled at applying manufacturing processes and amassing large quantities of raw materials, labor and capital inputs. This resulted in lower-cost production particularly for large scale operations than previously had been available. The increased efficiency of the larger corporations decreased prices in the product market, and the new competition from the emerging large corporations thrust many family-owned small businesses into an inefficient operating size.

2.2. *Structure-performance framework for emergence of entrepreneurship policy*

Chandler (1962) provided a framework to explain variations in firm performance. According to Chandler's framework, firm performance is shaped by the organization and structural characteristics of the enterprise. An analogous framework has been developed in the field of industrial organization (Scherer and Ross, 1990) to explain variations in performance for the unit of observation of industries or markets. According to the industrial organization framework (Scherer and Ross, 1990) industry or market performance is shaped by the underlying industry structure. That market structure is in turn influenced by the importance of key factors which are used in that industry. Thus, the elements of the structure-performance framework are:

2.2.1. *Market requirements*

The relative importance of the different types of factor inputs such as raw materials, unskilled labor, and capital determine the key factors for competing in a market.

2.2.2. *Market structure*

Market structure is shaped by the underlying factors of production. In an industry where capital and scale economies are important in the production process, a concentrated market structure characterized by oligopoly or monopoly often results. Whereas monopolistic markets are limited in structural factors, an oligopolistic market structure is accentuated by numerous structural factors, such as the degree of product differentiation, extent of entry barriers, degree of vertical integration, cost structures and breadth of diversification. By contrast, in industries where capital and scale economies do not play a significant role, the market tends to be less concentrated and more atomistic in nature.

2.2.3. *Market performance*

The industrial organization literature has sought to identify the impact of market structure on industry performance (Scherer and Ross, 1990). This literature has generated considerable numbers of studies seeking to answer one of two primary issues, namely (1) what is the degree of market power, concentration and oligopoly (market structure) and how has it been evolving over time; and (2) what is the impact of market power, concentration and oligopoly on performance measures such as prices and profits in particular.

Results of this literature is far too complex and idiosyncratic to summarize here, however, one general finding provided by Scherer and Ross (1990) was that there is a tradeoff between market power and performance, such that lower levels of market power, resulted in higher industry performance.

2.2.4. *Government response*

Increased market power through concentration results in production efficiency gains. However, such gains come through reduced competition. The implication for public policy was to find mechanisms for harnessing the productive efficiencies associated with large-scale production in concentrated markets while minimizing the negative aspects emanating from oligopolistic enterprises in concentrated industries. In particular, U.S. government policy evolved into a triad of public policy instruments to control big business – regulation, antitrust and public ownership.

The unsatisfactory performance emanating from large-scale production in concentrated markets induced policy intervention. While a lively debate raged among scholars about which specific instrument was more effective (Scherer and Ross, 1990), each instrument shared a common element in that it restricted the freedom of firms to contract.

As the superior efficiency of large-scale production over small business became obvious, a political debate emerged about what to do about the small business problem. One view held that the disappearance of small business should not be impeded, since it reflected the outcome of the efficiency enhancing market process (Chandler, 1977). The other view argued the importance of small businesses for political and social reasons. Policy efforts during the late nineteenth century therefore, were targeted towards preserving inefficient small businesses.

The passage of the Robinson-Patman Act is widely interpreted as one effort to protect small firms that would otherwise have been too inefficient to survive.¹ It also was passed with the goal of protecting small, independent retailers from the more efficient large chains.² According to Judge Richard Posner (1976), "The Robinson-Patman Act . . . is almost uniformly condemned by professional and academic opinion, legal and economic." Similarly, (former) Judge Robert Bork (1978, p. 382) observed that, "One often hears of the baseball player who, although a weak hitter, was also a poor fielder. Robinson-Patman is a little like that. Although it does not prevent much price discrimination, at least it has stifled a great deal of competition."

Similarly, preservationist efforts also appeared to be at work in the creation of the U.S. Small Business Administration. In the Small Business Act of July 10, 1953, Congress authorized the creation of the Small Business Administration, with an explicit mandate to "aid, counsel, assist and protect . . . the interests of small business concerns."³ The Small Business Act was clearly an attempt by the Congress to halt the continued disappearance of small businesses and to preserve their role in the U.S. economy. Like the Robinson-Patman Act, the Small Business Act was clearly targeted to preserve the viability of existing status quo small businesses.

Political motivations as the driving force behind the creation of policy instruments towards small business seem like a plausible explanation behind the urgency of small business preservation, however, in the next few sections we will offer an alternative rationale. Figure 1 represents a pictorial depiction of our rationale.

2.3. Enter catalysts – technology and globalization

2.3.1. Globalization

As virtually all measures of trade, foreign direct investment and integration indicate (Porter, 1986), the degree of globalization has increased sharply over the last century. Conventional wisdom would have predicted that increased globalization would present a more hostile environment for small business (Vernon, 1970). In fact, Caves (1982) argued that the additional costs of globalization, that would be incurred by small business would "constitute an important reason for expecting that

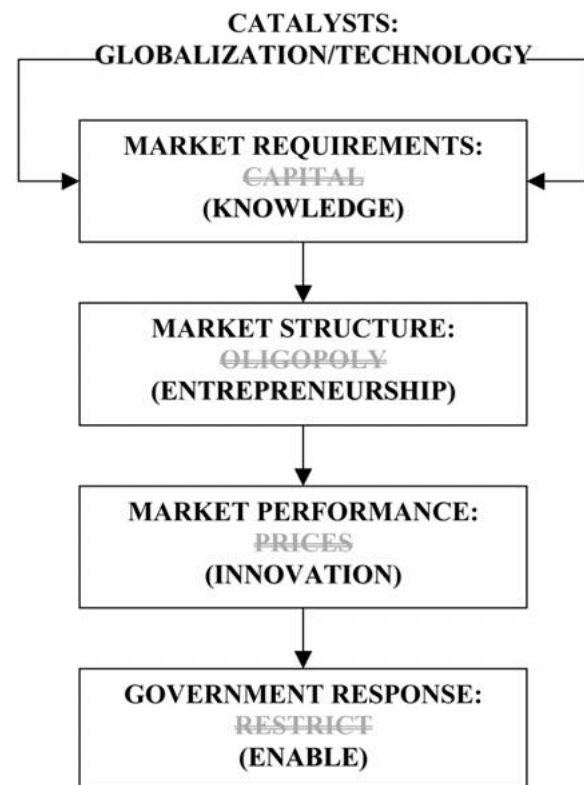


Figure 1.

foreign investment will be mainly an activity of large firms”.

Empirical evidence by Horst (1972) in particular seemed to confirm that after controlling for industry effects, the only factor significantly influencing the propensity to engage in foreign direct investment was firm size, leading Chandler (1990) to conclude that, “to compete globally you have to be big.”

Furthermore, Gomes-Casseres (1997, p. 33) acknowledged that, “[s]tudents of international business have traditionally believed that success in foreign markets required large size. Small firms were thought to be at a disadvantage compared to larger firms, because of the fixed costs of learning about foreign environments, communicating at long distances, and negotiating with national governments.” It is interesting to note, therefore, that the rise of the global economy apparently created tremendous opportunities for large and small firms alike. As Figure 2 shows, despite the increasing wave of globalization, entrepreneurial activity (as measured by the business ownership rate) reversed

its long-term decline and began to increase by the mid-1970s, a period consistent with the acknowledged beginnings of the globalization era (Bartlett and Ghoshal, 1999).

Whereas large firms benefited from rapid globalization by being able to exploit opportunities for economies of scale and scope (Bartlett and Ghoshal, 1999), small firms apparently benefited by taking advantage of opportunities left unexplored in the domestic market, as well as opportunities then available internationally.

2.3.2. *Technology*

Technology is often attributed as one of the driving forces behind globalization (Bartlett and Ghoshal, 1999). With each wave of technological change, the bar of knowledge required to obtain that level of sophistication changes. The result is generally a greater need for human capital, which has given rise to the increase in knowledge workers. Berman et al. (1997) showed that demand for less skilled workers has decreased dramatically, while demand for skilled workers has

U.S. Business Ownership Rate, 1972-1996



Figure 2.

exploded. Additionally, throughout the twentieth century patent applications fluctuated between 40,000 and 80,000 per year. In 1995, however, over 120,000 patent applications were filed. Conclusively, there has been an unprecedented jump in patent activities in the United States since 1985 (Kotrum and Lerner, 1997).

This shift, however, has not been without its costs. Audretsch and Feldman (1996) demonstrated that knowledge-based economic activity is costly to transfer across geographic space. The advent of information technologies, such as the internet, has reduced the cost of transferring codified information, such as the price of stocks in New York, or the temperature in Tokyo, to virtually zero. However, knowledge, and in particular those ideas that cannot be codified and require a large tacit element, cannot be transferred easily across geographic space using these new information technologies. Instead, face-to-face communication requiring geographic proximity is conducive to the transmission of ideas and tacit knowledge. As a result, knowledge generation appears to have localized.

A series of studies have identified a positive link between entrepreneurial activity and growth for spatial units of observation⁴ ranging from the city and region (Carree, 2001; Fritsch, 1997; National Commission on Entrepreneurship, 2001; Reynolds, 1999; Reynolds et al., 1995) to the country (Carree et al., 2000; Carree and Thurik, 1999; Thurik, 1999). While Fritsch (1997) and Reynolds (1999) provided compelling evidence that the regions are experiencing higher levels of entrepreneurial activity measured by startup rates and turbulence rates, Thurik (1999) provided empirical evidence from a 1984–1994 cross-sectional study of the 23 countries that are part of the Organization for Economic Co-operation and Development (OECD), that increased entrepreneurship, as measured by business ownership rates, was associated with higher rates of employment growth at the country level.

Similarly, the Global Entrepreneurship Monitor (GEM) Study Reynolds et al. (2000) established an empirical link between the degree of entrepreneurial activity and economic growth, as measured by employment, at the country level. Thus, not only have theoretical arguments made the implication that the growth of places is positively

associated with establishing an entrepreneurial advantage, but empirical evidence has as well. Subsequently, “places” developed a greater need for strategic management in order to capitalize on the growth associated with entrepreneurship. Because geographic proximity plays a greater role for the transmission of knowledge, which is costly and difficult to transmit, than for traditional factors (i.e. labor or capital), which are transmitted (relatively) more easily across geographic space (Porter and Wayland, 1995), a different set of policies implemental by the governments of places was required to foster entrepreneurial environments.

2.4. *Emergence of enabling policies*

When knowledge is the predominant factor of production, a different market structure emerges. Knowledge is inherently different from traditional factors of production, such as land, labor and capital (Arrow, 1962) in that it is uncertain, asymmetric, associated with greater transactions costs and therefore more difficult to evaluate across agents. Case studies (Holbrook et al., 2000) have documented how differences in evaluation of ideas result in the startup of numerous new companies providing evidence that new and small firms are the vehicles for at least some of the new ideas. High context, uncertain ideas, or what Von Hippel (1994) terms “sticky knowledge”, is best transmitted via face-to-face interaction and through frequent and repeated contact. Geographic proximity is valuable in this sense because as Arrow (1962) acknowledged, tacit knowledge is inherently non-rival in nature; knowledge developed for any particular application can easily spill over for use by a third-party firm. Glaeser et al. (1992, p. 1126) also observed that, “intellectual breakthroughs must cross hallway and streets more easily than oceans and continents.”

There is considerable evidence that knowledge spillovers result in both a geographic clustering of innovative activity (Audretsch and Feldman, 1996; Jaffe et al., 1993) as well as an increase in startups across innovative industries, such as semiconductors (Almeida and Kogut, 1997), and biotechnology (Audretsch and Stephan, 1996; Zucker et al., 1998). The link between entrepreneurial activity (business ownership rates) and growth of

various geographic regions, ranging from cities to counties and countries could not escape the notice of regional and local policy makers. Thus efforts began to develop new policy initiatives that focused on the startup and growth of new firms. Waves of deregulation and privatization replaced regulation and public ownership in the U.S. as well as across other OECD countries (OECD, 1997). Initiatives also emerged to promote the production and commercialization of knowledge, rather than to simply allow the market to produce knowledge on its own. The impetus for these initiatives could be linked to the market failure associated with knowledge-based activities.

There are tremendous costs and uncertainty associated with the generation of knowledge that oftentimes results in firm failure (Audretsch, 1995). Because a firm's knowledge capabilities may be conditional upon the geographic proximity of complementary knowledge firms, and value from such firms would be created even if an entrepreneurial startup fails, it benefits locales to create such an environment. The failure of a knowledge-based firm does not imply that the firm created no value. In fact, evidence suggests that ideas created by failed firms and projects often become integral parts of successful products and projects in successful firms (Holbrook, 1995; Holbrook et al., 2000). Fairchild Semiconductor, though it failed, generated ideas that were used by numerous other firms and has been attributed as the catalyst spawning Silicon Valley.⁵

The externalities sometimes associated with failed firms, also creates a market failure in the valuation of (potential) new enterprises by private investors and policy makers. Whereas the private investor can only appropriate her investment if the particular firm succeeds, a failed firm that generates knowledge externalities contributes to the success of other firms. A private investor, however, appropriates nothing from the original investment. Similarly, individual firms or workers would have little incentive to invest in the development of a geographic cluster, or the geographic concentration of entrepreneurial firms. As knowledge inherently is a public good whose production generates externalities (Arrow, 1962), the inability of a third party to appropriate returns from such is a given (Jaffe et al., 1993).

From the perspective of public policy, by

contrast, whether individual firms succeed is of little importance as long as some firms do and growth for the locale occurs. Thus, the shift to knowledge, combined with the propensity for knowledge to remain localized, resulted in a new policy opportunity for places – cities, regions, states and countries. It also resulted in a fundamental change in the role of government from that of an overseer of business, constraining the freedom of firms to contract, to that of a partner to business, enabling and fostering the development of new and small firms. This shift in policy emphasis as a response to a changing source of competitiveness from the traditional factors of capital and labor to the emerging factor of knowledge is depicted in Figure 1. This shows that when competitiveness was generated from capital and labor, the policy response towards large enterprises was restricted in nature, while small business was the target of preservationist policy. By contrast, when knowledge is the source of competitiveness in emerging markets, policy shifts towards enabling the startup and growth of new enterprises, or what can be termed as entrepreneurship policy.⁶

2.5. *Entrepreneurship policies – U.S.*

Examples of entrepreneurship policies abound at the local, regional, state & federal levels within the U.S. as well as other countries. While certainly not an exhaustive list, we present examples at each level in Table I. This section begins with a discussion of entrepreneurial policies pursued at the local level.

2.5.1. *Local level*

Sternberg (1996) documents how the success of a number of different high-technology clusters spanning a number of different local contexts is the direct result of policies such as the provision of venture capital or research support. The Advanced Technology Centers in New Jersey, and the Centers for Advanced Technology at Case Western Reserve University, Rutgers University and the University of Rochester have supported generic, pre-competitive research stimulating entrepreneurial startups (Sternberg, 1996). A striking example is evident in the history of Austin, Texas.

TABLE I
Examples of enabling policies

Level enacted	Example
National:	Small Business Innovation & Research (SBIR)
State:	Ohio Edison Program
Regional:	Research Triangle, NC
Local:	Austin, TX.
Specific examples, other countries:	START Program: Germany Special Purpose Credit Funds: Korea

In the early-1980s, Microelectronics and Computer Technology Corporation (MCC), persuaded by the efforts of University of Texas at Austin officials, local business leaders, and local and state government officials, decided to locate its headquarters to Austin. This not only brought Austin to the spotlight as a potential location for high-technology activities, but also initiated the university-industry partnership that is still evident today (Schmandt, 2001). Furthermore, a concentrated government policy effort to target the transfer of technology from the University of Texas and other research institutions to new-firm startups also exists. One of those policy initiatives, the Advanced Research Program in Texas, has provided support for basic research and infrastructure improvement at the University of Texas, and played a central role in developing a high-technology cluster around Austin (Feller, 1997). The success of these efforts has been attributed to the support of leadership at the local level as well as at the state level (Schmandt, 2001).

2.5.2. Regional level

The plethora of science, technology and research parks to emerge are perhaps the best representation of policies implemented to impact a regional level (Lugar and Goldstein, 1991). Lugar (2001, p. 47) noted that, "The most successful parks . . . have a profound impact on a region and its competitiveness." A distinct exemplar of this effect is found in the Research Triangle Park in North Carolina. The traditional industries in North Carolina – furniture, textiles, and tobacco – had all lost international competitiveness, resulting in declines in employment and stagnated real incomes. In 1952, only Arkansas and Mississippi had lower per capita incomes. A movement emerged to use the rich knowledge base of the

region, formed by the three major universities – Duke University, University of North Carolina-Chapel Hill and North Carolina State (Link and Scott, 2001, p. 2).

This movement, though initiated by North Carolina businessmen looking to improve industrial growth, was taken over by the Governor's office, which supported the efforts through fruition (Link, 1995). Empirical evidence provides strong support that the initiative creating Research Triangle has led to fundamental changes in the region. For example, Link and Scott (2001) documented that the growth in the number of research companies in the Research Triangle Park has increased from zero in 1958, to 50 by the mid-1980s, and to over 100 by 1997. Concurrently, employment from the Research Triangle companies increased from zero in the late 1950s to over 40,000 by 1997. Research Triangle Park has been attributed with directly and indirectly generating one-quarter of all jobs in the region between 1959 and 1990, as well as shifting the nature of those jobs towards high value-add knowledge activities (Lugar, 2001).

2.5.3. State level

Efforts at the state level have been just as prolific, but one state provides a particularly interesting case study. The Edison Technology Program of Ohio was established by the State of Ohio, as a means of transferring technology from universities and government research institutes to new firm startups. Carlsson and Brunerhjelm (1999) explain how the Edison BioTechnology Center serves an important dual role as a "bridging institution" between academic research and industry and between new startups and potential sources of finance. The Edison Centers in particular, try to link the leading universities and medical institu-

tions, businesses, foundations, to civic and state organizations in Ohio in order to create new business opportunities. Numerous centers exist across the state. Similarly, the Edison Program has established a bridging institution to support polymer research and technology in Ohio. Carlsson and Brunerhjelm (1999) credit the program for the startup of new high technology firms in Ohio.

2.5.4. Federal level

The Small Business Innovation Research (SBIR) program was enacted by the U.S. Congress in the early 1980s as a response to the loss of American competitiveness in global markets. Congress ordered each federal agency to allocate approximately four percent of its annual budget to funding innovative small firms as a mechanism for restoring American international competitiveness. Thus, the SBIR was essentially a mandate to the major R&D agencies in the United States to allocate a share of the research budget to innovative small firms (Cooper, 2001). The results evaluating the SBIR program (Lerner and Kegler, 2000; Lerner, 1999; Wessner, 2000) indicate the following:

The benefits of the SBIR extend beyond the impact on the individual recipient firm. The social rate of return, which incorporates this external positive impact, exceeds the positive rate of return. There was no evidence of a negative rate of return associated with the SBIR, but compelling evidence that the SBIR program has had a positive impact on developing the U.S. biotechnology industry. The benefits have been documented as:

- The survival and growth rates of SBIR recipients have exceeded those of firms not receiving SBIR funding.
- The SBIR induces scientists involved in biomedical research to change their career path. By applying the scientific knowledge to commercialization, these scientists shift their career trajectories away from basic research towards entrepreneurship.
- The SBIR awards provide a source of funding for scientists to launch start-up firms that otherwise would not have had access to alternative sources of funding.
- SBIR awards have a powerful demonstration effect. Scientists commercializing research results by starting companies induce colleagues to consider applications and the commercial potential of their own research.

2.6. Entrepreneurship policies – global

Although our discussion has primarily emphasized policies implemented at U.S. levels of govern-

ment, policies to promote entrepreneurial activity are not unique to the United States. Even so, the development and implementation of policies to promote entrepreneurship in other countries were perhaps at least to some degree, triggered by the growing awareness of the positive impact of entrepreneurship on regional competitiveness in certain U.S. areas, such as Silicon Valley and Route 128 (Saxenien, 1994). While cataloging all policies in each country would exceed the scope of this paper, several examples from various countries deserve mention.

2.6.1. Europe

The German Ministry of Economics and Technology (1999) attributed the high unemployment and stagnant growth rates plaguing Germany during the 1990s to a lack of entrepreneurial activity. The policy response, therefore, involved a plethora of instruments to stimulate the startup of new enterprises, particularly in high-technology industries. One of the most interesting examples involves the establishment of five EXIST regions in Germany, where startups from universities and government research laboratories are encouraged (BMBF, 2000). The program has the explicit goals of (1) creating an entrepreneurial culture, (2) the commercialization of scientific knowledge, and (3) increasing the number of innovative start-ups and SMEs. Five regions were selected among many applicants for START funding. They include the (1) Rhein-uhr region (bizeps program), (2) Dresden (Dresden exists), (3) Thuringen (GET UP), (4) Karlsruhe (KEIM), and (5) Stuttgart (PUSH!).

2.6.2. Asia

“Virtually nowhere has the relative role of small and medium enterprises . . . changed as much over time as in South Korea” (Nugent and Yhee, forthcoming). By the mid-1970s, Korea was characterized by “the extreme dominance in economic and public policy of its large *chaebol* (conglomerate firms)” (Nugent and Yhee, forthcoming). Kim and Nugent (1999) document how public policy shifted from supporting and promoting the *chaebol* prior to the 1970s, to promoting small business and new startups by the 1980s and 1990s. One goal of these policies was to compensate for the “earlier neglect of SMEs” (Nugent and Yhee,

forthcoming). In particular, the new constitution in the 1980s mandated that the government promote small firms.

In the 1990s, policy shifted towards promoting high-technology entrepreneurship in Korea. The new entrepreneurial policies resulted in the introduction of specific-purpose credit funds to foster venture capital for high-tech startups. In addition, numerous programs were introduced to assist mature small firms in updating their technology. An ambitious system for identifying and providing various kinds of support for “promising SMEs” was established. Various tax breaks to small firms, such as accelerated depreciation allowances, deductions from taxable income, tax moratoria, and tax rate reductions, were also implemented.

According to Nugent and Yhee (forthcoming), there has been a proliferation of technical research centers and institutes organized as either government or nonprofit agencies. There is at least some empirical evidence suggesting that these types of government programs have contributed to a greater role of small firms in Korea (Nugent and Yhee, forthcoming). The share of manufacturing employment accounted by small business (with fewer than 300 employees), increased from 45.7 percent in 1975, to 61.7 percent in 1990, and finally to 69.3 percent by 1997 (Nugent and Yhee, forthcoming).

3. Conclusion

The Employment Act of 1946 made public policy responsible for growth and employment in the United States. In particular, The Act stated that it is “The continuing policy and responsibility of the . . . government to use all practical means . . . to foster the general conditions under which there will be afforded useful employment opportunities.” To meet this mandate, the government turned to monetary and fiscal policy as the main instruments to achieve the Act’s goals of attaining full employment and high economic growth. This meant that growth and employment policies were essentially under the jurisdiction of the federal government and less relevant for regional and local governments.

Globalization and the shift towards knowledge as the source of competitiveness rendered the traditional policy instruments less effective. These

instruments, alone, could no longer guarantee high growth and employment, certainly not for all regions and locations. Thus, policy makers started looking for new sources of growth and jobs. The links between entrepreneurship, employment and growth did not escape the attention of policy makers. As globalization resulted in the loss of jobs and stagnation to local and regional economies, policy makers specifically at the state and local levels responded by developing new policy instruments to help them implement the strategic management of regions. These new policy instruments have generally focused on entrepreneurship as an engine of economic development. And as a result, a new public policy agenda to promote entrepreneurship has been implemented at virtually all levels of government.

Although it has been argued that entrepreneurship policies were developed as a stopgap measure to absorb workers displaced by corporate downsizing (Storey, 1991), this paper argues that entrepreneurship policies instead are emerging as one of the most essential instruments for economic growth. Thus, just as monetary and fiscal policy were the mainstays for creating employment and growth in the post-war economy, entrepreneurship policy is likely to emerge as the most important policy instrument for a global and knowledge-based economy.

Notes

¹ According to the Robinson-Patman Act, “It shall be unlawful for any person engaged in commerce, in the course of such commerce, either directly or indirectly, to discriminate in price between different purchasers of commodities of like grade and quality. . . .”

² For example, A&P was found in violation of the Robinson-Patman Act for direct purchases from suppliers and from performing its own wholesale functions. While these activities resulted in lower distribution costs, the gains in efficiency were seen as being irrelevant because small business was threatened.

³ <http://www.sba.gov/aboutsba/sbahistory.html>.

⁴ Spatial units of observation refer to a geographic dimension such as a city, county, region, or country.

⁵ Holbrook et al. (2000) provide extensive documentation of this phenomenon.

⁶ For further discussion of entrepreneurship policy see Lundstroem and Stevenson (2002).

References

- Almeida, P. and B. Kogut, 1997, 'The Exploration of Technological Diversity and the Geographic Localization of Innovation', *Small Business Economics* **9**, 21–31.
- Arrow, K. J., 1962, 'Economic Welfare and the Allocation of Resources for Invention', in R. R. Nelson (ed.), *The rate and Direction of Inventive Activity*, Princeton: Princeton University Press, pp. 609–626.
- Audretsch, D. B., 1995, *Innovation and Industry Evolution*, Cambridge, MA: MIT Press.
- Audretsch, D. B. and M. D. Feldman, 1996, 'R&D Spillovers and the Geography of Innovation and Production', *American Economic Review* **86**, 630–639.
- Audretsch, D. B. and P. E. Stephan, 1996, 'Company-Scientist Locational Links: The Case of Biotechnology', *American Economic Review* **86**, 641–652.
- Berman, E., J. Bound and S. Machin, 1997, Implications of Skill-Based Technological Change: International Evidence. Working Paper 6166, National Bureau of Economic Research (NBER), Cambridge.
- Bork, R. H., 1978, *The Antitrust Paradox*, New York: Basic Books.
- Carlsson, B. and P. Braunerhjelm, 1999, 'Industry Clusters: Biotechnology/Biomedicine and Polymers in Ohio and Sweden', in D. B. Audretsch and R. Thurik (eds.), *Innovation, Industry Evolution, and Employment*. Cambridge: Cambridge University Press, pp. 182–215.
- Carree, M., 2001, 'Does Unemployment Affect the Number of Establishments? A Regional Analysis for U.S. States', *Regional Studies*, forthcoming.
- Carree, M. A. and A. R. Thurik, 1999, 'Industrial Structure and Economic Growth', in D. B. Audretsch and A. R. Thurik (eds.), *Innovation, Industry Evolution and Employment*, Cambridge: Cambridge University Press, pp. 86–110.
- Carree, M. A., A. van Stel, A. R. Thurik and S. Wennekers, 2000, Economic Development and Business Ownership: An Analysis Using Data of 23 OECD Countries in the Period 1976–1996. Institute for Development Strategies Discussion Paper 00-6.
- Caves, R. E., 1982, *Multinational Enterprise and Economic Analysis*, Cambridge: Cambridge University Press.
- Chandler, A., 1990, *Scale and Scope: The Dynamics of Industrial Capitalism*, Cambridge: Harvard University Press.
- Chandler, Jr., A. D., 1977, *The Visible Hand: The Managerial Revolution in American Business*, Cambridge: Harvard University Press.
- Cooper, R. S., Forthcoming, 'Purpose and Performance of the Small Business Innovation Research (SBIR) Program', *Small Business Economics*.
- Feller, I., 1997, 'Federal & State Government Roles in Science & Technology', *Economic Development Quarterly* **11**, 283–296.
- Fritsch, M., 1997, 'New Firms and Regional Employment Change', *Small Business Economics* **9**, 437–448.
- German Federal Ministry of Economics and Technology, 1999, *Economic Report '99*. Bonn: Federal Ministry of Economics and Technology.
- Glaeser, E. L., H. D. Kallal, J. A. Scheinkman and A. Shleifer, 1992, 'Growth of Cities', *Journal of Political Economy* **100**, 1126–1152.
- Gomez-Casseres, B., 1997, 'Alliance Strategies of Small Firms', *Small Business Economics* **9**, 33–44.
- Holbrook, D., 1995, 'Government Support of the Semiconductor Industry: Diverse Approaches and Information Flows', *Business and Economic History* **24**, 133–168.
- Holbrook, D., W. M. Cohen, D. A. Hounshell and S. Klepper, 2000, 'The Nature, Sources, and Consequences of Firm Differences in the Early History of the Semiconductor Industry', *Strategic Management Journal* **21**, 1017–1041.
- Horst, T., 1972, 'Firm and Industry Determinants of the Decision to Invest Abroad: An Empirical Study', *Review of Economic Statistics*, 258–266.
- Jaffe, A. B., M. Trajtenberg and R. Henderson, 1993, 'Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations', *Quarterly Journal of Economics* **63**, 577–598.
- Kim, L. and J. B. Nugent, 1999, 'Korean SMEs and Their Support Systems', in B. Levy, A. Berry and J. B. Nugent (eds.), *Fulfilling the Export Potential of Small and Medium Firms*, Boston: Kluwer.
- Kortum, S. and J. Lerner, 1997, Stronger Protection or Technological Revolution: What is Behind the Recent Surge in Patenting? Cambridge, MA: Working Paper 6204, National Bureau of Economic Research (NBER).
- Lerner, J., 1999, 'The Government as Venture Capitalist: The Long-Run Effects of the SBIR Program', *Journal of Business* **72**, 285–297.
- Lerner, J. and C. Kegler, 2000, 'Evaluating the Small Business Innovation Research Program: A Literature Review', in C. Wessner (ed.), *The Small Business Innovation Research Program (SBIR)*, Washington, DC: National Academy Press, pp. 307–327.
- Link, A. N., 1995, *A Generosity of Spirit: The Early History of Research Triangle Park*, Durham: Duke University Press.
- Link, A. N. and J. T. Scott, Forthcoming, 'The Growth of Research Triangle Park', *Small Business Economics*.
- Lugar, M. and H. Goldstein, 1991, *Technology in the Garden: Research Parks and Regional Economic Development*, Chapel Hill, NC: The University of North Carolina Press.
- Lugar, M., 2001, 'The Research Triangle Experience', in C. Wessner (ed.), *Industry-Laboratory Partnerships: A Review of the Sandia Science and Technology Park Initiative*, Washington, DC: National Academy Press, pp. 35–38.
- National Commission on Entrepreneurship, 2001.
- Nugent, J. B. and S. Yhee, Forthcoming, 'Small and Medium Enterprises in Korea: Achievements, Constraints and Policy Issues', *Small Business Economics*.
- Organization for Economic Co-operation and Development (OECD), 1997, *The OECD Report on Regulatory Reform*, Paris: OECD.
- Porter, M. E., 1986, 'Changing Patterns of International Competition', *California Management Review* **28**(2), 9–40.
- Porter, M. E. and R. E. Wayland, 1995, 'Global Competition and the Localization of Competitive Advantage', in

- Advances in Strategic Management*, vol. 11A, Greenwich, CT: JAI Press, pp. 63–105.
- Posner, R. A., 1976, *The Robinson-Patman Act: Federal Regulation of Price Differences*, Washington, D.C.: American Enterprise Institute.
- Reynolds, P. D., 1999, 'Creative Destruction: Source or Symptom of Economic Growth?', in Z. J. Acs, B. Carlsson and C. Karlsson (eds.), *Entrepreneurship, Small and Medium-Sized Enterprises and the Macroeconomy*, Cambridge: Cambridge University Press, pp. 97–136.
- Reynolds, P. D., M. Hay, W. D. Bygrave, S. M. Camp and E. Autio, 2000, *Global Entrepreneurship Monitor*, Kansas City: Kauffman Center for Entrepreneurial Leadership.
- Reynolds, P. D., B. Miller and W. R. Maki, 1995, 'Explaining Regional Variation in Business Births and Deaths: U.S. 1976–1988', *Small Business Economics* 7, 389–407.
- Saxenian, A., 1994, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Cambridge, MA: Harvard University Press.
- Schmandt, J., 2001, 'The Austin Experience', in C. W. Wessner (ed.), *A Review of the Sandia Science and Technology Park Initiative*, Washington, DC: National Academy Press, pp. 39–41.
- Scherer, F. M. and D. Ross, 1990, *Industrial Market Structure and Economic Performance*, 3rd edition, Boston: Houghton-Mifflin.
- Sternberg, R., 1996, 'Technology Policies and the Growth of Regions', *Small Business Economics* 8, 75–86.
- Storey, D. J., 1991, 'The Birth of New Enterprises – Does Unemployment Matter? A Review of the Evidence', *Small Business Economics* 3, 167–178.
- Thurik, A. R., 1999, 'Entrepreneurship, Industrial Transformation and Growth', in G. D. Libecap (ed.), *The Sources of Entrepreneurial Activity, in Advances in the Study of Entrepreneurship, Innovation and Economic Growth*, Vol. 11, Greenwich, CT: JAI Press, pp. 29–66.
- United States Department of Commerce, Bureau of the Census, 1958, *Enterprise Statistics*, Washington, DC: U.S. Government Printing Office.
- United States Department of Commerce, Bureau of the Census, 1977, *Enterprise Statistics*, Washington, DC: U.S. Government Printing Office.
- Vernon, R., 1970, 'Organization as a Scale Factor in the Growth of Firms', in J. W. Markham and G. F. Papanek (eds.), *Industrial Organization and Economic Development*, Boston: Houghton Mifflin, pp. 47–66.
- Von Hippel, E. 1994, 'Sticky Information and the Locus of Problem Solving: Implications for Innovation', *Management Science* 40, 429–439.
- Wessner, C. (ed.), 2000, *The Small Business Innovation Research Program (SBIR)*. Washington, DC: National Academy Press.
- Zucker, L. G., M. R. Darby and M. B. Brewer, 1998, 'Intellectual Human Capital and the Birth of U.S. Biotechnology Enterprises', *American Economic Review* 88, 290–306.

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