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Introduction

Why Entrepreneurship Matters

Zoltan J. Acs, David B. Audretsch, and Robert Strom

1.1. Introduction

When the three editors of this volume studied and prepared for their doctoral degrees in three different American Ph.D. programs during the late 1970s, not one of them heard a word about entrepreneurship and small business. All three of them had a specialization in the field of industrial organization within economics, the field most closely related to issues concerning firm size and organization. In all three Ph.D. programs, as was no doubt true across the entire landscape of American graduate schools, the focus was exclusively on large corporations and their impact on the economy. The large corporation was widely accepted as the source of jobs – good-paying ones – and security. No wonder that when the Chairman of General Motors, Charlie "Engine" Wilson, exclaimed, "What's good for General Motors is good for America,"[1] the country believed. There certainly was no room for the study and analysis of something as peripheral and tangential as small business and entrepreneurship in the nation's top graduate programs in economics. Nor was there any room or interest within the entire economics profession. The 1990 edition of *Palgrave's Encyclopedia of Economics*, consisting of over a dozen volumes and spanning thousands of pages covering virtually every topic imaginable on economics, barely touched on the issues of small business and entrepreneurship, a gap unfilled until 2008 The most influential economics book in the modern history of the profession, *Principles of Economics*, by

[1] David Halberstam, in *The Fifties* (New York: Villard Books, 1993), p. 118, corrects this conventional wisdom. What Wilson actually said was, "We at General Motors have always felt that was good for the country was good for General Motors as well."

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Paul Samuelson, barely contains reference to small business and entrepreneurship. Until 2007, the classifications of topics and fields in economics organized by the *Journal of Economic Literature*, the guiding light of the profession, contained only a scant mention of entrepreneurship, included in a sub-category of a sub-category under "business studies."

Given this apparent conviction by the economics profession of the irrelevance of small business and entrepreneurship for economics issues, it must have been startling when the public policy community started looking to entrepreneurship as an engine of economic growth, employment, and a high standard of living. For example, the European Council of Lisbon, along with then President of the European Union, Romano Prodi (2002, p. 1), in an effort to revive economic growth and employment prospects committed Europe to becoming not just the world's knowledge leader but also the leader in entrepreneurship: "Our lacunae in the field of entrepreneurship needs to be taken seriously because there is mounting evidence that the key to economic growth and productivity improvements lies in the entrepreneurial capacity of an economy."

It is not just the European Union that has turned to entrepreneurship to generate growth, employment, and competitiveness in a global economy. The National Governors Association in the United States named innovation and entrepreneurship as the overriding theme for state strategy in 2007. Communities, cities, regions, and nations throughout the world have been turning to entrepreneurship as an engine of growth, jobs, and competitiveness.

While the public policy community has turned to entrepreneurship to maintain, restore, or generate economic prosperity, the economics profession has been remarkably taciturn in providing guidance for public policy to understand the links between entrepreneurship and economic growth as well as an analytical lens through which policy issues and decisions can be framed and weighed. Both the Ewing Marion Kauffman Foundation in the United States and the Max Planck Institute of Economics in Germany are committed to providing such an economic framework and lens through which public policy decisions involving entrepreneurship can be guided and analyzed. Thus, the Kauffman-Max Planck Annual Summit on Entrepreneurship Research and Policy was created through a joint venture by both institutions to foster the economic analysis of entrepreneurship with a particular emphasis on generating a framework to guide the public policy community. The first Summit was held in May 2006 at the Schloß Ringberg in Tegern See, in the Alps outside Munich, assembling the leading scholars in the world on entrepreneurship. The purpose of this volume is

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to provide insights from leading research concerning the links among entrepreneurship, innovation, and economic growth and to shed light on implications for public policy.

In the following section, the shift from physical capital to knowledge is explained. How and why large firms discouraged innovation and growth based on that knowledge is explained in the third section. The mandate for public policy in the entrepreneurial economy is the focus of the fourth section. A summary of definitions is presented in the fifth section. Finally, how the individual contributions contained in this volume fit together in a coherent manner to help us begin to make sense of the links among entrepreneurship, growth, and public policy is presented in the concluding section.

1.2. Was Entrepreneurship Really so Unimportant?

There is a reason why entrepreneurship and small business were absent from the literature and focus not just in economics, but throughout the social sciences during the postwar era. Robert Solow was awarded the Nobel Prize for identifying what mattered for economic growth in his famous 1956 and 1957 papers. What Solow found, or at least formalized, is that essentially two factors, physical capital and labor, were the driving forces of economic growth. It should be emphasized that in the formal growth accounting of the Solow model, the unexplained residual was attributed to technical change, which was interpreted as falling like manna from heaven. According to Nelson (1981, p. 1030), "Robert Solow's 1956 theoretical article was largely addressed to the pessimism about full employment growth built into the Harrod-Domar model .... In that model he admitted the possibility of technological advance."

Solow's articulation and formalization of physical capital as the key factor shaping economic performance corresponded to, if not triggered, a central focus in both the scholarly and policy communities on physical capital. The famous "Cambridge Capital Controversy" involved a bitter dispute between scholars located at universities in the two Cambridges separated by a common ocean. Whether and how physical capital could be measured and then subsequently linked to economic growth within the framework of the Solow growth accounting model was sharply contested by scholars such as Joan Robinson and other colleagues at Cambridge University in the United Kingdom.

The emphasis on physical capital as the crucial factor driving economic welfare had a corresponding influence on scholarly thinking about how resources should best be organized and deployed at the levels of both the

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firm and industry. Leading scholars of firm organization and strategy, such as Alfred Chandler (1977, 1990), meticulously showed how firm efficiency and strategy revolved around size, in terms of both scale as well as scope. Similarly, scholars such as F. M. Scherer (1970) painstakingly documented a growing body of empirical evidence suggesting that the most efficient organization of an industry typically involved a high degree of concentration of resources within just a handful of large corporations.

The primacy of capital as the driving force of efficiency and competitiveness subsequent to the Second World War focused the entire field of industrial organization on analyzing and understanding the efficiencies and implications associated with firm size and industry concentration. The field galvanized around the task of identifying the perceived trade-off between economic efficiency resulting from size and concentration, on the one hand and political and economic decentralization, on the other, which could be used to frame policy-making decisions. Scherer (1970) amassed a vast literature addressing three main issues: (1) What are the efficiencies rendered from large-scale production? (2) Does the concentration of economic assets and decision making have consequences for economic welfare? and (3) What are the trade-offs confronting public policy?

Thus, compelling theoretical models and empirical evidence supported the conclusion of Joseph A. Schumpeter's (1942, p. 106) conclusion, "What we have got to accept is that the large-scale establishment or unit of control has come to be the most powerful engine of progress and in particular of the long-run expansion of output." John Kenneth Galbraith (1956, p. 86) echoed Schumpeter's conclusion: "There is no more pleasant fiction than that technological change is the product of the matchless ingenuity of the small man forced by competition to employ his wits to better his neighbor."

The ensuing policy debate revolved around how best to live with the perceived trade-off between size and efficiency versus decentralization and, presumably, greater democratic participation. The policy response throughout Organisation for Economic Co-operation and Development (OECD) countries was generally to constrain the freedom of firms to contract, using the three main policy instruments of regulation, public ownership, and antitrust, or what the rest of the world outside the United States refers to as competition policy. Sweden and France had a greater emphasis on state ownership of firms, the United Kingdom and Germany on regulation, and the United States was the most interventionist in terms of antitrust policy. While at the time a heated debate emerged concerning which approach was superior, in retrospect the debate actually involved which instrument was the most effective approach to solving the policy trade-off

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inherent in a capital-based economy. As Audretsch and Thurik (2001) and Audretsch (2007b) concluded, each country found its own unique approach to living with this inherent policy trade-off in the managed economy.

There seemed to be little role for small business and entrepreneurship in the capital-driven managed economy of the postwar era. Organizing and deploying physical capital at a small scale seemingly contradicted the fundamental findings, insights, and policy prescriptions that emerged from the pervasive and compelling economics and management literature. The marginalization, if not outright abandonment, of small business and entrepreneurship implicit in the analyses and subsequent conclusions of the scholarly literature was reflected in the public policy community. Even advocates of small business conceded that small firms were no match for the breathtaking efficiencies generated by large-scale manufacturing pouring out of the large corporation. What such advocates of small business were willing to sacrifice, however, was a modicum of efficiency, in order to attain other non-economic goals, such as social and political contributions made by small business. Thus, public policy toward small business was essentially "preservationist," with the goal of preserving a type of business and industry organization that might otherwise have become extinct due to its inherent inefficiency. For example, with passage of the Small Business Act of July 10, 1953, the U.S. Congress created the Small Business Administration, with an explicit mandate to "aid, counsel, assist and protect . . . the interests of small business concerns."[2]

By the mid-1970s, in the United States the comparative advantage in physical capital–based manufacturing began to erode. Imported autos and steel poured into the United States from more efficient competitors in Germany and Japan. Previously, "the U.S. was virtually unchallenged as industrial leader. Americans could make anything, and because their products were the best, they could sell whatever they made, both at home and abroad. But somewhere around 1973," *Business Week* lamented, "the gravy train was derailed – and it has never really gotten back on track. U.S. producers met fierce competition from foreign industries that churned out high-quality goods made by low-wage workers."[3]

Nevertheless, as the capital-intensive industrial heartland of the American Midwest – which became known as the rustbelt – suffered waves of job layoffs and plant closings due to international competition, some firms, industries and regions were thriving in the new global environment.

[2] http://www.sba.gov/aboutsba/sbahistory.html
[3] "Can America Compete?" *Business Week*, April 27, 1987, pp. 45–69.

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Scholars were quick to point to the common denominator for success: a shift away from the factor of physical capital toward knowledge capital, which generally consisted of science, technology, creativity, and ideas.

Knowledge and the shift from physical capital was formally introduced into macroeconomic growth models by Romer (1986) and Lucas (1993). Not only was knowledge explicitly recognized as a key factor of production, but it also had a particularly potent impact on economic growth as a result of its propensity to spill over for commercialization by third-party firms.

While the fundamental factors driving economic growth, employment, and competitiveness shifted dramatically from physical capital to knowledge capital, the role that small business and entrepreneurship could play seemingly remained the same: marginal at best. As scholars turned their analyses to the study of innovation and technological change, from both the management and economics perspectives, the large corporation seemed to have a competitive advantage over its smaller counterparts.

For example, Zvi Griliches (1979) formalized the thinking about innovation prevalent in the economics literature by introducing the model of the knowledge production function. According to this view, the firm is exogenous, and by investing in the creation of knowledge capabilities, innovative output is endogenous. The framework of focusing on innovation as a decision by exogenous firms to endogenously generate innovative output corresponded to a growing literature in management strategy, with its roots dating back to Edith Penrose (1958) and its more modern rendition of the resource-based theory of the firm (Barney and Clark, 2007). The emphasis not only on a firm's investments in research and development (R&D) as a strategy for generating knowledge but also its capacity to absorb external knowledge (Cohen and Levinthal, 1989, 1990) seemingly corresponded to a mounting body of empirical evidence pointing to scale economies in R&D rendering the competitive advantage in knowledge investments, again, to the large corporations. While the policy instruments prescribed in the new endogenous growth theories, such as university research, patents, human capital, R&D, and creativity, were strikingly different from those of the capital-based managed economy, small business and entrepreneurship remained an afterthought.

1.3. Entrepreneurship as a Conduit of Knowledge Spillovers

Nevertheless, the public policy and scholarly communities have discovered that, despite the enormous contribution by the endogenous growth theory in highlighting the central role of investments in new knowledge, there

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remains a missing link to economic growth, employment creation, and international competitiveness. For example, as measured by the most common benchmarks of knowledge investments, such as R&D, university research, patents, human capital, education, creativity and culture, Sweden has ranked consistently among the world's leaders. However, following more than a decade of stagnant growth and rising unemployment, concerned policymakers in Sweden started to worry about what they termed "the Swedish Paradox." Romano Prodi, then President of the European Union, along with the Commission of the European Union were so impressed by this articulation of persistent stagnant economic growth despite high levels of knowledge investments that they adapted it for the European context, by highlighting "the European Paradox."

In fact, had the Europeans looked across to the other side of the Atlantic, they would have discovered the Americans also suffering from an inability to harvest innovation and economic growth from costly knowledge investments. As Senator Birch Bayh pointed out in 1978, "A wealth of scientific talent at American colleges and universities – talent responsible for the development of numerous innovative scientific breakthroughs each year – is going to waste as a result of bureaucratic red tape and illogical government regulations."[4]

Acs et al. (2004) and Audretsch et al. (2006) identified what they termed as the *knowledge filter* as impeding the spillover of knowledge for commercialization, innovation, and ultimately economic growth. The knowledge filter is an artifact of the conditions characterizing knowledge and differentiating it from the more traditional factors of production, such as physical capital and labor. The value of any new idea is inherently uncertain and asymmetric. Different people with different backgrounds will not only assign a different expected value to any given new idea, but the costs of transacting the perspectives emanating across different experiences and sets of backgrounds are typically prohibitively high to make anything approaching a consensus about the value of a new idea almost impossible. Thus, a large and compelling literature has documented decision after decision reached at large corporations not to pursue new ideas that ultimately led to valuable innovations and in some cases triggered entire new industries. Examples include the copy machine, the fax machine, the personal computer, and the flat screen.

[4] Introductory statement of Birch Bayh, September 13, 1978, cited from the Association of University Technology Managers Report (AUTM) (2004, p. 5).

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All of these ideas were caught in the knowledge filter of an incumbent large corporation (Audretsch, 2007a).

As Audretsch (1995), Acs et al. (2004, 2006), Acs and Armington (2006), and Audretsch et al. (2006) suggest, entrepreneurship provides a unique and valuable contribution to economic growth by serving as a conduit for the spillover and commercialization of knowledge and ideas that might otherwise have been abandoned or remained dormant in the corporations and organizations creating those ideas in the first place. Many of the most visible and successful companies of today were created by people who tenaciously stuck with ideas rejected by the decision-making bureaucracy of large corporations and choose to pursue and commercialize those ideas by becoming entrepreneurs. Examples include Apple Computer, SAP, Xerox, Microsoft (IBM turned down Bill Gates's offer to buy the company), and Intel. Other companies, such as Google and Genetech, are the result of entrepreneurs taking ideas and knowledge developed at universities and facilitating their spillover and commercialization by starting a new firm. According to the knowledge spillover theory of entrepreneurship (Acs et al., 2004, 2007; Audretsch et al., 2006), as the knowledge context increases, entrepreneurship becomes more important because it provides a missing link for economic growth by commercializing investments in knowledge and ideas that might otherwise have remained uncommercialized.

1.4. Public Policy for the Entrepreneurial Economy

The entrepreneurial economy refers to an economy where entrepreneurship capital, as well as physical capital, human capital, and knowledge capital, is an important source of economic growth. In neither the Solow (1956) model nor the endogenous growth models of Romer (1986) and Lucas (1993) did entrepreneurship capital seem to matter at all or make any contribution to economic growth. However, by including a measure of entrepreneurship capital within the context of an endogenous growth model, Audretsch et al. (2006) find compelling evidence that in Germany, those regions with a greater endowment of entrepreneurship capital exhibit a higher level of economic growth. Entrepreneurship capital reflects the capacity of a spatial unit of analysis, such as a community, city, region, state, or country, to generate entrepreneurial activity in the form of new-firm start-ups. While they did not include an explicit measure of entrepreneurship capital that was linked to economic growth, empirical evidence linking entrepreneurship to economic growth for the United

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States was provided by Acs and Armington (2006) and for OECD countries by Acs et al. (2004).

It is one thing to provide an econometric link between entrepreneurship capital and economic growth, but another to suggest how entrepreneurship capital can be increased. Still, a massive effort is being made at virtually every level of government and community to try to create and augment entrepreneurship capital in an effort to generate growth, employment, and competitiveness. The mandate for public policy in the entrepreneurial economy spans a broad spectrum of institutions, policy agencies, and instruments, ranging from education to immigration and health care. In addition, it also involves all levels of policy, from the most local to the broadest, such as the European Union. However, the goal is singular: how to increase entrepreneurship capital.

1.5. Distilling and Defining Terms

In this volume a number of common conceptual terms are used and repeated throughout. Although entrepreneurship is important for the economy, it is still a relatively new academic field, and, consequently, consistent and specific definitions for terms that have broad general meanings are still lacking. To help set the stage, the basic definitions are provided here.

Because entrepreneurs and their actions is the dominate theme of this volume, it is important to define entrepreneur. Joseph A. Schumpeter provides an excellent starting point, going back to 1911, when in his classic treatise, *Theorie der wirtschaftlichen Entwicklung*, he proposed a theory of creative destruction, where he was unambiguous about the organizational structure most conducive to entrepreneurs: new firms infused with entrepreneurial spirit would displace the tired old incumbents, ultimately leading to vigorous innovative activity, which in turn would generate a higher degree of economic growth. Thus what made entrepreneurs different from other agents in the economy was their willingness to pursue innovative activity, "The function of entrepreneurs is to reform or revolutionize the pattern of production by exploiting an invention, or more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way. . . . To undertake such new things is difficult and constitutes a distinct economic function, first because they lie outside of the routine tasks which everybody understands, and secondly, because the environment resists in many ways" (Schumpeter, 1942, p. 13). As Scherer (1992, p. 1417) points out, "In his 1911 book,

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Schumpeter insisted that innovations typically originated in new, characteristically small, firms commencing operation outside the 'circular flow' of existing production activities. To be sure, the small innovating firms that succeeded would grow large, and their leaders would amass great fortunes. They started, however, as outsiders." In this volume the perspective of the earlier Schumpeter is adapted to the entrepreneur as the person involved in starting a new firm. This corresponds with the definition by Gartner and Carter (2003): "Entrepreneurial behavior involves the activities of individuals who are associated with creating new organizations rather than the activities of individuals who are involved with maintaining or changing the operations of on-going established organizations."

Stepping back, entrepreneurship generally refers to the process by which new opportunities are discovered and implemented. Casson (2003) suggests that an entrepreneurial opportunity exists when "new goods, services, raw material and organizing methods can be introduced and sold at greater than their costs of production."[5]

Several concepts used throughout this book may sound similar but have slightly different and nuanced connotations. For example, human capital generally refers to the stock of productive skills and capabilities embodied in labor, while knowledge capital is a broader, more inclusive concept that includes dimensions such as creativity and ideas. Regions or entire economies possess not just stocks of physical capital and knowledge capital, but also entrepreneurship capital, which is defined as the capacity of a region or economy to generate entrepreneurship (Audretsch, 2007b).

The managed economy, a term introduced by Audretsch and Thurik (2001, p. 206), was the set of public policies and institutional approaches used after World War II. During this era, large corporations were the driving force of economic growth and employment creation. The result is that "What may have been perceived as a disparate set of policies at the time appears in retrospect to comprise a remarkably singular policy approach – a managed economy." Audretsch (2007a) suggests that, regarding the managed economy, "the right institutions and policies to create a workforce and external conditions that could make an economy centered around the large corporation work the best." By contrast, the entrepreneurial economy is defined as an economy where entrepreneurship is a driving force of economic growth and employment (Audretsch and Thurik, 2001; Audretsch et al., 2006; Acs and Stough, 2008). A more detailed exploration of the managed economy, the

[5] Cited from Shane and Venkataraman (2000, p. 220).

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