

# The entrepreneurial society

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**Abstract** This paper explains why and how entrepreneurship has emerged as an engine of economic growth, employment creation and competitiveness in global markets. The entrepreneurial society reflects the emergence as entrepreneurship as an important source of economic growth.

**Keywords** Entrepreneurship · Economic growth · Growth · Innovation · Knowledge · Spillovers

**JEL classification** D03 · O40 · L26

## 1 Introduction

A generation ago, public policy looked to the great corporations as the engine of economic growth. Charlie “Engine” Wilson, then the Chairman of General Motors, admonishment, “What’s good for General Motors is good for America,”<sup>1</sup> reflected a sense that it was the large manufacturing corporation in industries based on large-scale production with high investments in physical capital that shaped economic performance. Scholars in economics (Scherer 1970) and management (Chandler 1977 and Chandler 1990) generally backed this view up with compelling empirical evidence.

However, more recently, a very different view has emerged about the sources of economic growth and therefore the appropriate role for public policy. With the 2000 Lisbon Proclamation emanating from the European Council of Europe, Prodi (2002, p. 1),

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<sup>1</sup> Quoted from Halberstam (1993, p. 118).

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President of the European Commission, committed the European Union to becoming the world's entrepreneurship leader in order to ensure prosperity and a high level of economic performance in the EU, "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."

As Bresnahan and Gambardella (2004, p. 1) observe, "Clusters of high-tech industry, such as Silicon Valley, have received a great deal of attention from scholars and in the public policy arena. National economic growth can be fueled by development of such clusters. ...Innovation and entrepreneurship can be supported by a number of mechanisms operating within a cluster." Mowery (2005, p. 1) similarly observes, "During the 1990s, the era of the 'New Economy', numerous observers (including some who less than 10 years earlier had written off the U.S. economy as doomed to economic decline in the face of competition from such economic powerhouses as Japan), hailed the resurgent economy in the United States as an illustration of the power of high-technology entrepreneurship. The new firms that a decade earlier had been criticized by authorities such as the MIT Commission on Industrial Productivity (Dertouzos et al. 1989) for their failure to sustain competition against non-U.S. firms, were now seen as important sources of economic dynamism and employment growth. Indeed, the transformation in U.S. economic performance between the 1980s and 1990s is only slightly less remarkable than the failure of most experts in academia, government, and industry, to predict it."

The purpose of this paper is to explain how and why the driving force of economic growth, employment creation and global competitiveness has evolved so dramatically in the past half century. The changing role of entrepreneurship in the economy reflects three disparate views of the economy, which correspond not only to three historical periods but also three economic models. The first emphasizes the importance of physical capital and corresponds to the public policy debate framed by the Solow model. The second emphasizes the importance of knowledge and corresponds to the Romer model. The third focuses on the role of knowledge-based entrepreneurship and corresponds to a shift in the public policy debate as to how to create an entrepreneurial society.

## 2 The Solow economy

Something of a consensus emerged about the driving force underlying economic growth emerging from the second world war and the Great Depression before it—physical capital. Robert Solow was awarded the Nobel Prize for formalizing the neoclassical model of economic growth, where two factors of production—physical capital and labor—were econometrically linked to economic growth.<sup>2</sup> As Nelson (1981, p. 1032) wrote, "Since the mid-1950s, considerable research has proceeded closely guided by the neoclassical formulation. Some of this work has been theoretical. Various forms of the production function have been invented. Models have been developed which assume that technological advance must be embodied in new capital...Much of the work has been empirical and guided by the growth accounting framework implicit in the neoclassical model."

<sup>2</sup> Solow in fact pointed out that technical change was essential for economic growth. However, in the econometric specification, the impact of technical change was inferred from the unexplained residual, which "falls 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."

In fact, the public policy debate to generate growth and employment reflected, if not was guided by, the framework provided by Solow and his disciples. The Solow model focused economic growth and employment policy on investments in physical capital. This certainly reflected the popular perception of physical capital as the engine for economic growth. As the historian Robert Payne reflected at the U.S. post World War II economic performance, “There never was a country more fabulous than America. She sits bestride the world like a Colossus; no other power at any time in the world’s history has possessed so varied or so great an influence on other nations...Half of the wealth of thee world, more than half of the productivity, nearly two-thirds of the world machines are concentrated in American hands, the rest of the world lies in the shadow of American industry.”<sup>3</sup>

If the Solow model provided the crucial link between physical capital and economic growth for the macroeconomic unit of analysis, a concomitant focus on how the organization and deployment or strategy involving the factor of physical capital emerged for the unit of analysis of the firm (Chandler 1977 and 1990) and industry (Scherer 1970). In fact, the entire field of industrial organization had emerged as a response to a public policy concern over large corporations possessing too much market power as to corrupt the functioning of markets and ultimately the economy. Industrial organization had its roots as a response to the so-called *Trust Problem* emerging in the mid- to late-1800s. The first stirring of industrial organization as a field came as response to the emergence of the trusts of the late 1900s and their perceived adverse impact on performance criteria such as prices and profits. Not only were their trusts attributed to demolishing family businesses, farms in the Midwest and entire communities, but the public policy debate at the time accused them of threatening the underpinnings of democracy in the United States. In arguing for the passage of the 1890 Act, Senator Sherman argued, “If we will not endure a King as a political power we should endure a King over the production, transportation, and sale of the necessities of life. If we would not submit to an emperor we should not submit to an autocrat of trade with power to prevent competition and to fix the price of any commodity.”

It became the task of the scholars toiling in the field of industrial organization to explicitly identify what exactly was gained and lost, as a result of large-scale production and a concentration of economic ownership and decision-making. During the post-war period a generation of scholar galvanized the field of industrial organization by developing a research agenda dedicated to identifying the issues involving this perceived trade-off between economic efficiency on the one hand, and political and economic decentralization on the other. Scholarship in industrial organization generated a massive literature focusing on essentially three issues:

- (1) What are the gains to size and large-scale production?
- (2) What are the economic welfare implications of having an oligopolistic or concentrated market structure (i.e. Is economic performance promoted or reduced in an industry with just a handful of large-scale firms?)
- (3) Given the overwhelming evidence that large-scale production resulting in economic concentration is associated with increased efficiency, what are the public policy implications?

Oliver Williamson’s classic 1968 article “Economies as an Antitrust Defense: The Welfare Tradeoffs,” published in the *American Economic Review*, became something of a final statement demonstrating what appeared to be an inevitable trade-off between the gains in productive efficiency from increased concentration and gains in terms of

<sup>3</sup> Quoted from Halberstam (1993, p. 116).

competition, and implicitly democracy, from decentralizing policies (Williamson 1968). But it did not seem possible to have both; certainly not in Williamson's completely static model.

Thus, one of the most fundamental policy issue confronting Western Europe and North America during the post-war era was how to live with this apparent trade-off between economic concentration and productive efficiency on the one hand, and decentralization and democracy on the other. The public policy question of the day was, *How can society reap the benefits of the large corporation in an oligopolistic setting while avoiding or at least minimizing the costs imposed by a concentration of economic power?* The policy response was to constrain the freedom of firms to contract. Such policy restraints typically took the form of public ownership, regulation, and competition policy or antitrust. At the time, considerable attention was devoted to what seemed like glaring differences in policy approaches to this apparent trade-off by different countries. France and Sweden resorted to government ownership of private business. Other countries, such as the Netherlands and Germany, tended to emphasize regulation. Still other countries, such as the United States, had a greater emphasis on antitrust. In fact, most countries relied on elements of all three policy instruments. While the particular instrument may have varied across countries, they were, in fact, manifestation of a singular policy approach—how to restrict and restrain the power of the large corporation. What may have been perceived as the disparate set of policies at the time appears in retrospect to comprise a remarkable singular policy approach.

Western economists and policy-makers of the day were nearly unanimous in their acclaim for large-scale enterprises. It is no doubt an irony of history that this consensus mirrored a remarkably similar gigantism embedded in Soviet doctrine, fueled by the writing of Marx and ultimately implemented by the iron fist of Stalin. This was the era of mass production when economies of scale seemed to be the decisive factor in determining efficiency. This was the world so colorfully described by Galbraith (1956) in his *Theory of Countervailing Power*, in which big business was held in check by big labor and by big government.

With a decided focus on the role of large corporations, oligopoly, and economic concentration, the literature on industrial organization yielded a number of key insights concerning the efficiency and impact on economic performance associated with new and small firms:

- (1) Small firms were generally less efficient than their larger counterparts. Studies from the United States in the 1960s and 1970 revealed that small firms produced at lower levels of efficiency.
- (2) Small firms provided lower levels of employee compensation. Empirical evidence from both North America and Europe found a systematic and positive relationship between employee compensation and firm size.
- (3) Small firms were only marginally involved in innovative activity. Based on R&D measures, SMEs accounted for only a small amount of innovative activity.
- (4) The relative importance of small firms was declining over time in both North America and Europe.

Thus, while a heated debate emerged about which approach best promoted large-scale production while simultaneously constraining the ability of large corporations to exert market power, there was much less debate about public policy toward small businesses and entrepreneurship. The only issue was whether public policy-makers should simply allow small firms to disappear as a result of their inefficiency or intervene to preserve them on

social and political grounds. Those who perceived small firms to contribute significantly to growth, employment generation, and competitiveness were few and far between.

In the post-war era, small firms and entrepreneurship were viewed as a luxury, perhaps needed by the West to ensure a decentralization of decision-making; but obtained only at a cost to efficiency. Certainly the systematic empirical evidence, gathered from both Europe and North America documented a short trend toward a decreased role of small firms during the post-war period.

Public policy toward small firms generally reflected the view of economists and other scholars that they were a drag on economic efficiency and growth, generated lower quality jobs in terms of direct and indirect compensation, and were generally on the way to becoming less important to the economy, if not threatened by long-term extinction. Some countries, such as the former Soviet Union, but also Sweden and France, adapted the policy stance of allowing small firms to gradually disappear and account for a smaller share of economic activity.

The public policy stance of the United States reflected long-term political and social valuation of small firms that seemed to reach back to the Jeffersonian traditions of the country. Thus, the public policy toward small business in the United States was oriented toward preserving what was considered to be inefficient enterprises, which, if left unprotected, might otherwise become extinct.

Even advocates of small business agreed that small firms were less efficient than big companies. These advocates were willing to sacrifice a modicum of efficiency, however, because of other contributions—moral, political, and otherwise—made by small business to society. Small business policy was thus “preservationist” in character. For example, the passage of the Robinson-Patman Act in 1936, along with its widespread enforcement in the post-war era, was widely interpreted as one effort to protect small firms, like independent retailers, that would otherwise have been too inefficient to survive in open competition with large corporations. Preservationist policies were clearly 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.”<sup>4</sup> 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.

### 3 The Romer economy

Globalization did not change the importance of physical capital but rather drastically altered the geography of its location. The post-war distribution of physical capital highly concentrated in the United States, as Payne observed, did not prove to be sustainable. Rather, as first Western Europe and Japan recovered, but subsequent to 1989 eastern Europe, and other parts of Asia as well, the comparative advantage of production based on physical capital shifted from the high-cost OECD countries to lower cost regions. As a result, employment in traditional manufacturing industries in the most developed countries plummeted (Audretsch 2007).

Economics had an answer. If physical capital was at the heart of the Solow economy, knowledge capital replaced it in the Romer economy. Most significantly, while it had proven feasible to locate economic activity based on physical capital at foreign locations in

<sup>4</sup> <http://www.sba.gov/aboutsba/sbahistory.html>

a manner that had been predicted by Vernon (1966), outsourcing and offshoring economic ideas based on ideas, and in particular tacit knowledge, was less feasible. This suggested that the comparative advantage of high cost locations was shifting away from physical capital and towards knowledge or economic activity based on new ideas that could not costlessly be copied. While the policy goals of economic growth remained relatively unchanged, the Romer model reflected the emergence of a new emphasis on a strikingly different policy mechanism, knowledge capital, involving very different policy instruments, such as investments in human capital, research and a focus on intellectual property protection (Romer 1986; Lucas 1993).

Entrepreneurship and small firms seemed at least as incompatible with the knowledge-based Romer economy as they were in the capital-based Solow economy (Solow 1956). The most prevalent theory of innovation in economics, the model of the knowledge production function, suggested that knowledge-generating inputs, such as research and development (R&D) were a prerequisite to generating innovative output. With their limited and meager investments in R&D, at least in absolute terms, new and small firms did not seem to possess sufficient knowledge capabilities to be competitive in a knowledge-based economy.

However, investments in knowledge, such as human capital, R&D and patents, as well as broader aspects such as creativity, did not prove to be an automatic panacea for stagnant economic growth and rising unemployment. In what became known first as the *Swedish Paradox*, which was later adapted as the *European Paradox*, described the disappointment of economic growth that did not seem to respond to high levels of investment in knowledge.

#### 4 The entrepreneurial society

The resolution of the Swedish Paradox and European Paradox (Audretsch & Keilbach 2008) came from rethinking the fundamental model of innovation. In searching for the innovative advantage of different types of firms, Acs & Audretsch (1988, 1990) surprisingly found that small firms provided the engines of innovative activity, at least in certain industries. The breakdown of the model of the knowledge production function at the level of the firm raises the question, *Where do innovative firms with little or no R&D get the knowledge inputs?* This question becomes particularly relevant for small and new firms that undertake little R&D themselves, yet contribute considerable innovative activity in newly emerging industries such as biotechnology and computer software. One clue supplied by the literature on new economic geography identifying the local nature of knowledge spillovers is from other, third-party firms or research institutions, such as universities, that may be located within spatial proximity (Audretsch 1995). Economic knowledge may spill over from the firm conducting the R&D or the research laboratory of a university for access by a new and small firm.

How can new and small firms access such knowledge spillovers? And why should new and small firms have a competitive advantage accessing knowledge produce elsewhere vis-à-vis their larger counterparts? That is, what are the mechanisms transmitting the spillover of the knowledge from the source producing that knowledge, such as the R&D laboratory of a large corporation, or a university, to the small firm actually engaged in commercializing that knowledge.

The discrepancy in organizational context between the organization creating opportunities and those exploiting the opportunities that seemingly contradicted the model of the firm knowledge production function was resolved by introducing the Knowledge Spillover

Theory of Entrepreneurship, “The findings challenge an assumption implicit to the knowledge production function—that firms exist exogenously and then endogenously seek out and apply knowledge inputs to generate innovative output... It is the knowledge in the possession of economic agents that is exogenous, and in an effort to appropriate the returns from that knowledge, the spillover of knowledge from its producing entity involves endogenously creating a new firm” (Audretsch 1995, pp. 179–180).

What is the source of this entrepreneurial opportunity that endogenously generated the startup of the new firms? The answer seemed to be through the spillover of knowledge that created the opportunities for the startup of a new firm, “How are these small and frequently new firms able to generate innovative output when undertaken a generally negligible amount of investment into knowledge-generating inputs, such as R&D? One answer is apparently through exploiting knowledge created by expenditures on research in universities and on R&D in large corporations” (Audretsch 1995, p.179).

The empirical evidence supporting the knowledge spillover theory of entrepreneurship was provided by analyzing variations in startup rates across various industries reflecting different underlying knowledge contexts. In particular, those industries with a greater investment in new knowledge also exhibited higher startup rates while those industries with less investment in new knowledge exhibited lower startup rates, which were interpreted as a conduit transmitting knowledge spillovers (Audretsch & Keilbach 2007).

Thus, compelling evidence was provided suggesting that entrepreneurship is an endogenous response to opportunities created but not exploited by the incumbent firms. This involved an organizational dimension involving the mechanism transmitting knowledge spillovers—the startup of new firms. Additionally, Jaffe (1989), Audretsch and Feldman (1996) and Audretsch and Stephan (1996) provided evidence concerning the spatial dimension of knowledge spillovers. In particular, their findings suggested the knowledge spillovers are geographically bounded and localized within spatial proximity to the knowledge source. None of these studies, however, identified the actual mechanisms which actually transmit the knowledge spillover; rather, the spillovers were implicitly assumed to automatically exist (or fall like Manna from heaven), but only within a geographically bounded spatial area.

The knowledge spillover theory of entrepreneurship contests the view that entrepreneurial opportunities are exogenous and only individual-specific characteristics and attributes influence the cognitive process underlying the entrepreneurial decision to start a firm. Rather, the Knowledge Spillover Theory of Entrepreneurship explicitly identifies an important source of opportunities – investments in knowledge and ideas made by firms and universities that are not completely commercialized. By linking the degree of entrepreneurial activity to the degree of knowledge investments in a specific place, systematic empirical evidence was provided suggesting that entrepreneurial opportunities are not at all exogenous, but rather endogenous to the extent of investments in new knowledge. In a comprehensive study with colleagues at the Max Planck Institute, we found that regions rich in knowledge generated a greater amount of entrepreneurial opportunities than regions with impoverished knowledge (Audretsch et al. 2006). This empirical evidence confirmed the theory suggesting that entrepreneurial opportunities are not exogenous to the context but, rather, systematically related to the knowledge context.

The Knowledge Spillover Theory of Entrepreneurship identified one such mechanism by which knowledge created with one context and purpose spills over from the organization creating it to the organization actually attempting to commercialize that knowledge. Entrepreneurship has emerged as a vital organizational form for economic growth because it provides the missing link (Acs et al. 2004) in the process of economic growth. By serving



as a conduit for the spillover of knowledge, entrepreneurship is a mechanism by which investments, both private and public, generate a greater social return, in terms of economic growth and job creation.

Audretsch et al. (2006) suggest that in addition to labor, physical capital, and knowledge capital, the endowment of entrepreneurship capital also matters for generating economic growth. Entrepreneurship capital refers to the capacity for the geographically relevant special units of observation to generate the startup of new enterprises.

The concept of *social capital* (Putnam 1993; Coleman 1988) added a social component to the traditional factors shaping economic growth and prosperity. (Audretsch et al. (2006), suggest that what has been called social capital in the entrepreneurship literature may actually be a more specific sub-component, which they introduce as *entrepreneurship capital*. The entrepreneurship capital of an economy or a society refers to the institutions, culture, and historical context that is conducive to the creation of new firms. This involves a number of aspects such as social acceptance of entrepreneurial behavior but of course also individuals who are willing to deal with the risk of creating new firms and the activity of bankers and venture capital agents that are willing to share risks and benefits involved. Hence entrepreneurship capital reflects a number of different legal, institutional and social factors and forces. Taken together, these factors and forces constitute the entrepreneurship capital of an economy, which creates a capacity for entrepreneurial activity.

By including measures of entrepreneurship capital along with the traditional factors of physical capital, knowledge capital, and labor in a production function model estimating economic growth, Audretsch et al. (2006) found pervasive and compelling economic evidence suggesting that entrepreneurship capital also contributes to economic growth.

Public policy did not wait for the painstaking econometric evidence linking entrepreneurship to economic growth. The mandate for entrepreneurship policy has generally emerged from what would superficially appear to be two opposite directions. One direction emanates from the failure of the traditional policy instruments, corresponding to the Solow model, or those based on instruments promoting investment into physical capital, to adequately maintain economic growth and employment in globally linked markets. The emergence of entrepreneurship policy as a *bona fide* approach to generating economic growth and job creation has been rampant through the old rust belt of the industrial Midwest in the United States, ranging from cities such as Cleveland and Pittsburgh to states such as Wisconsin and Indiana who are pinning their economic development strategies on entrepreneurship policies.

The second push for the entrepreneurship policy mandate is from the opposite direction—the failure of the so-called new economy policy instruments, corresponding to the Romer model, or those promoting investment into knowledge capital to adequately generate economic growth and employment. Recognition of the *European Paradox*, where employment creation and economic growth remain meager, despite world-class levels of human capital and research capabilities triggered the Lisbon Proclamation stating that Europe would become the entrepreneurship leader by 2020.

Although coming from opposite directions, both have in common an unacceptable economic performance. The mandate for entrepreneurship policy is rooted in dissatisfaction—dissatisfaction with the *status quo*, and in particular, with the *status quo* economic performance.<sup>5</sup>

<sup>5</sup> A third direction contributing to the mandate for entrepreneurship policy may be in the context of less developed regions and developing countries. Such regions have had endowments of neither physical capital nor knowledge capital but still look to entrepreneurship capital to serve as an engine of economic growth.



## 5 Conclusions

The entrepreneurial society refers to places where knowledge-based entrepreneurship has emerged as a driving force for economic growth, employment creation and competitiveness in global markets. As the initial capital-driven Solow model and the more recent knowledge-driven Romer model have not delivered the expected levels of economic performance by themselves, a mandate for entrepreneurship policy has emerged and begun to diffuse throughout the entire globe. Whether or not specific policy instruments will work in the particular contexts is not the point of this paper. What is striking, however, is the emergence and diffusion of an entirely new public policy approach to generate economic growth—the creation of the entrepreneurial society. It is upon this new mantle of entrepreneurial society that locations, ranging from communities to cities, states and even entire nations, hang their hopes, dreams and aspirations for prosperity and security.

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