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14 The models of the managed and entrepreneurial economies

David Audretsch and Roy Thurik

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1 Introduction

Robert Solow (1956) was awarded a Nobel Prize for identifying the sources of growth – the factors of capital and labor. These were factors best utilized in large-scale production. Throughout the first three-quarters of the last century, the increasing level of transaction costs (Coase, 1937) incurred in large-scale production dictated increasing firm size over time. Certainly, statistical evidence points towards an increasing presence and role of large enterprises in the economy in this period (Caves, 1982; Teece, 1993; Brock and Evans, 1989). This development towards large-scale activity was visible, not just in one country, but in most of the OECD countries. In this same period, the importance of entrepreneurship and small business seemed to be fading. Although it was recognized that the small business sector was in need of protection for both social and political reasons, there were few that made this case on the grounds of economic efficiency.

Romer (1986), Lucas (1988, 1993) and Krugman (1991) discovered that the traditional production factors of labor and capital are not sufficient in explaining growth and that knowledge instead has become the vital factor in endogenous growth models. Knowledge has typically been measured in terms of R&D, human capital and patented inventions (Audretsch and Thurik, 2000, 2001). Many scholars have predicted that the emergence of knowledge as an important determinant of growth and competitiveness in global markets would render new and small firms even more futile. Conventional wisdom would have predicted increased globalization to present an even more hostile environment to small business (Vernon, 1970).

Caves argued that the additional costs of knowledge activity that would be incurred by small businesses in a global economy 'constitute an important reason for expecting that foreign investment will be mainly an activity of large firms' (Caves, 1982, p. 53). As Chandler (1990, p. 78) concluded: 'to compete globally you have to be big'. Furthermore, Gomes-Casseres (1997, p. 33) observed that 'students of international business have traditionally believed that success in foreign markets required large size'. In a world that became dominated by exporting giant firms, global markets, global products and global players became the focus of interest. Small firms were thought to be at a disadvantage vis-à-vis larger firms because of the fixed costs of learning about foreign environments, communicating at long distances, and negotiating with national governments.

Despite these counteracting forces, entrepreneurship has emerged as the engine of economic and social development throughout the world.[1] The role of entrepreneurship has changed dramatically, fundamentally shifting between what Audretsch and Thurik (2001) introduced as the model of the managed economy and that of the entrepreneurial economy. In particular, Audretsch and Thurik (2001) argue that the model of the managed economy is the political, social and economic response to an economy dictated by the forces of large-scale production, reflecting the predominance of the production factors of capital and (unskilled) labor as the sources of competitive advantage. By contrast, the model of the entrepreneurial economy is the political, social and economic response to an economy dictated not just by the dominance of the production factor of knowledge – which Romer (1990, 1994) and Lucas (1988) identified as replacing the more traditional factors as the source of competitive advantage – but also by a very different, but complementary, factor they had overlooked: entrepreneurship capital, or the capacity to engage in and generate entrepreneurial activity. It is not straightforward that knowledge or R&D always spills over owing to its mere existence (Audretsch and Keilbach, 2004).

The purpose of this chapter is to discuss the distinction between the models of the managed and entrepreneurial economies and to explain why the model of the entrepreneurial economy may be a better frame of reference than the model of the managed economy when explaining the role of entrepreneurship in the contemporary, developed economies. This is done by contrasting the most fundamental elements of the managed economy model with those of the entrepreneurial economy model. Building upon Audretsch and Thurik (2000, 2001), Audretsch *et al.* (2002) and Thurik and Verheul (2003), 14 dimensions are identified as the basis for comparing models of the entrepreneurial and the managed economy. The common thread throughout these dimensions is the more important role of new and small enterprises in the entrepreneurial economy model (as compared to

that of the managed economy). Understanding the distinction between the models of the entrepreneurial and managed economies is vital for entrepreneurship education explaining why the causes and consequences of entrepreneurship differ in the managed and the entrepreneurial economies (Wennekers *et al*., 2002; Thurik *et al*., 2002). This suggests that the conditions for, and aspects of, teaching entrepreneurship under the model of the entrepreneurial economy may not be the same as under the managed economy model. While the paradigm prevalent across the management curricula was a response to managing production in the managed economy model, the model of the entrepreneurial economy dictates new approaches.

2 The era of the managed economy

Throughout the first three-quarters of the last century large enterprise was clearly the dominant form of business organization (Schumpeter, 1934). The systematic empirical evidence, gathered from both Europe and North America, documented a sharp decrease in the role of small business in the postwar period. This was the era of mass production when economies of scale seemed to be the decisive factor in dictating efficiency. This was the world described by John Kenneth Galbraith (1956) in his theory of countervailing power, where the power of 'big business' was balanced by that of 'big labor' and 'big government'. This was the era of the man in the gray flannel suit and the organization man, when virtually every major social and economic institution acted to reinforce the stability and predictability needed for mass production (Piore and Sabel, 1984; Chandler, 1977).[2] Stability, continuity and homogeneity were the cornerstones of the managed economy (Audretsch and Thurik, 2001). Large firms dominated this economy. Large corporations in the managed economy are described in *The Economist* (22 December 2001, p. 76): 'They were hierarchical and bureaucratic organizations that were in the business of making long runs of standardized products. They introduced new and improved varieties with predictable regularity; they provided workers with life-time employment; and enjoyed fairly good relations with the giant trade unions.' In organization studies this modernism is referred to as Fordism.[3]

Small firms and entrepreneurship were viewed as a luxury, as something Western countries needed to ensure a decentralization of decision making, obtained only at the cost of efficiency. A generation of scholars, spanning a broad spectrum of academic fields and disciplines, has sought to create insight into the issues surrounding this perceived trade-off between economic efficiency on the one hand and political and economic decentralization on the other (Williamson, 1968). These scholars have produced a large number of studies focusing mainly on three questions: (i) What are the gains to size and large-scale production?, (ii) What are the economic and

welfare implications of an oligopolistic market structure; i.e., is economic performance promoted or reduced in an industry with just a handful of large-scale firms?, and (iii) Given the overwhelming evidence that large-scale production and economic concentration are associated with increased efficiency, what are the public policy implications?

This literature has produced a series of stylized facts about the role of small business in the postwar economies of North America and Western Europe:

- *Small businesses were generally less efficient than their larger counterparts*. Studies from the United States in the 1960s and 1970s revealed that small businesses produced at lower levels of efficiency than larger firms (Weiss, 1976, 1964; Pratten, 1971).
- *Small businesses were characterized by 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 (Brown *et al*., 1990; Brown and Medoff, 1989).
- *Small businesses were only marginally involved in innovative activity*. Based on R&D measures, small businesses accounted for only a small amount of innovative activity (Chandler, 1990; Scherer, 1991; Acs and Audretsch, 1990; Audretsch, 1995).
- *The relative importance of small businesses was declining over time in both North America and Europe* (Scherer, 1991).

3 The emergence of the entrepreneurial economy

Given the painstaking and careful documentation that large-scale production was driving out entrepreneurship, it was particularly startling and seemingly paradoxical when scholars first began to document that (what had seemed like) the inevitable demise of small business, began to reverse itself from the 1970s onwards. Loveman and Sengenberger (1991) and Acs and Audretsch (1993) carried out systematic international analyses examining the re-emergence of small business and entrepreneurship in North America and Europe. Two major findings emerged from these studies. First, the relative importance of small business varies largely across countries, and, secondly, in most European countries and North America the importance of small business increased from the mid-1970s. In the United States the average real GDP per firm increased by nearly two-thirds between 1947 and 1989 – from $150 000 to $245 000 – reflecting a trend towards larger enterprises and a decreasing importance of small firms. However, within the subsequent seven years it had fallen by about 14 per cent to $210 000, reflecting a sharp reversal of this trend and the re-emergence of small business (Brock and Evans, 1989). Similarly, small firms accounted for one-fifth of manufacturing sales in the United States

in 1976, but by 1986 the sales share of small firms had risen to over one-quarter (Acs and Audretsch, 1993).

The reversal of the trend away from large enterprises towards the re-emergence of small business was not limited to North America. It was also seen in Europe. For example, in the Netherlands the business ownership rate (business owners per workforce) fell during the postwar period, until it reached the lowest point of 0.081 in 1984 (Verheul *et al.*, 2002). The downward trend was subsequently reversed, and a business ownership rate of 0.104 was reached by 1998 (ibid.). Similarly, the employment share in manufacturing of small firms in the Netherlands increased from 68.3 per cent in 1978 to 71.8 per cent in 1986. In the United Kingdom this share increased from 30.1 per cent in 1979 to 39.9 per cent in 1986; in (Western) Germany from 54.8 per cent in 1970 to 57.9 per cent by 1987; in Portugal from 68.3 per cent in 1982 to 71.8 per cent in 1986; in the North of Italy from 44.3 per cent in 1981 to 55.2 per cent in 1987, and in the South of Italy from 61.4 per cent in 1981 to 68.4 per cent in 1987 (Acs and Audretsch, 1993). A study of EIM (2002) documents how the relative importance of small firms in Europe (19 countries), measured in terms of employment shares, continued to increase between 1988 and 2001. See Figure 14.1 for the development of the entrepreneurship rates (=business ownership rates) in a selection of countries taken from van Stel (2003). Some U-shape can be observed for these countries. The upward trend of the entrepreneurship rate is leveling off in such countries as the UK and the US.[4] In the UK this may be due to policy measures favoring incumbent growth businesses rather than start-ups

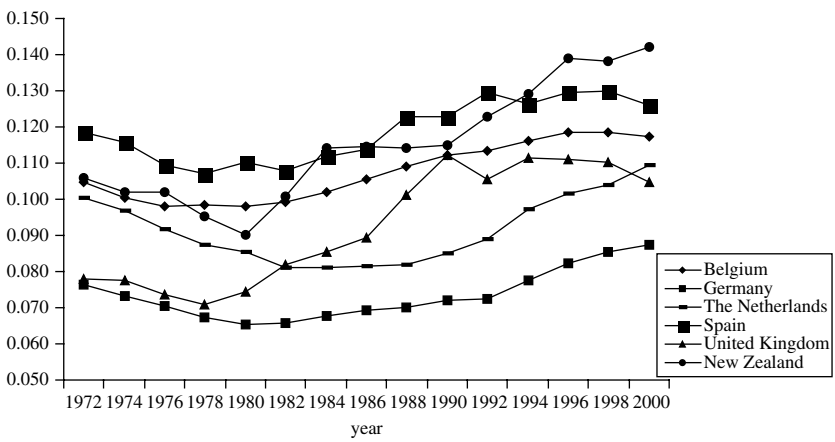

Figure 14.1 Entrepreneurship rates (business owners per workforce) in six OECD countries

(Thurik, 2003). In the US this may be due to the high level of economic development and to shake-out of industries that are in a more advanced stage than elsewhere in the area of modern OECD countries.[5]

As the empirical evidence documenting the re-emergence of entrepreneurship increased, scholars began to look for explanations and to develop a theoretical basis. Early explanations (Brock and Evans, 1989) revolved around six hypotheses regarding the increased role of small firms:

- Technological change reduces the importance of scale economies in manufacturing.[6]
- Increased globalization and the accompanying competition from a greater number of foreign rivals render markets more volatile.
- The changing composition of the labor force, towards a greater participation of women, immigrants, young and old workers, is more conducive to smaller than to larger enterprises, owing to the greater premium placed on work flexibility.
- A proliferation of consumer demand away from standardized and mass-produced goods towards tailor-made and personalized products facilitates small producers serving niche markets.
- Deregulation and privatization facilitate the entry of new and small firms into markets previously protected and inaccessible.
- The increased importance of innovation in high-wage countries reduces the relative importance of large-scale production, fostering entrepreneurial activity instead.

Audretsch and Thurik (2001) explain the re-emergence of entrepreneurship in Europe and North America on the basis of increased globalization, which has shifted the comparative advantage towards knowledge-based economic activity. They discuss the consequences for economic performance: entrepreneurship capital may be a missing link in explaining variations in economic performance (Audretsch and Keilbach, 2004). An alternative and wider view of this missing link may be that it is the institutional fabric that makes the difference between high and low performance. For example, Saxenian (1994) attributes the superior performance of Silicon Valley to a high capacity for promoting entrepreneurship. While the traditional production factors of labor and capital, as well as knowledge capital, are important in shaping output, the capacity to harness new ideas by creating new enterprises is also essential to economic output.

While entrepreneurs undertake a definitive action, i.e., they start a new business, this action can not be viewed in a vacuum devoid of context. Rather, as Audretsch *et al.* (2002) show, entrepreneurship is shaped by a number of forces and factors, including legal and institutional as well as

social factors. The study of social capital and its impact on economic decision making and behavior dates back to classic economics and sociology literature where it is argued that social and relational structures influence market processes (Granovetter, 1985). Thorton and Flynne (2003) and Saxenian (1994) argue that entrepreneurial environments are characterized by thriving supportive networks that provide the institutional fabric linking individual entrepreneurs to organized sources of learning and resources. Studying networks located in California's Silicon Valley, Saxenian (1990, pp. 96–7) emphasizes that it is the communication between individuals that facilitates the transmission of knowledge across agents, firms, and industries, and not just a high endowment of human capital and knowledge in the region:

> It is not simply the concentration of skilled labor, suppliers and information that distinguish the region. A variety of regional institutions – including Stanford University, several trade associations and local business organizations, and a myriad of specialized consulting, market research, public relations and venture capital firms – provide technical, financial, and networking services which the region's enterprises often cannot afford individually. These networks defy sectoral barriers: individuals move easily from semiconductor to disk drive firms or from computer to network makers. They move from established firms to startups (or vice versa) and even to market research or consulting firms, and from consulting firms back into startups. And they continue to meet at trade shows, industry conferences, and the scores of seminars, talks, and social activities organized by local business organizations and trade associations. In these forums, relationships are easily formed and maintained, technical and market information is exchanged, business contacts are established, and new enterprises are conceived . . . This decentralized and fluid environment also promotes the diffusion of intangible technological capabilities and understandings.

Such contexts generating a high propensity for economic agents to start new firms can be characterized as being rich in entrepreneurship capital. Other contexts, where the start-up of new firms is inhibited, can be characterized as being weak in entrepreneurship capital.[7]

Entrepreneurship capital exerts a positive impact on competitiveness and growth in a number of ways. The *first* way is by creating knowledge spillovers. Romer (1986), Lucas (1988, 1993) and Grossman and Helpman (1991) established that knowledge spillovers are an important mechanism underlying endogenous growth. However, they shed little light on the actual mechanisms by which knowledge is transmitted across firms and individuals. Insight into the process of knowledge diffusion is important, especially since a policy implication commonly drawn from new economic growth theory is that, owing to the increasing role of knowledge and the resulting increasing returns, knowledge factors (e.g., R&D) should be publicly supported. It is important to recognize that also the mechanisms for spillovers

may play a key role and, accordingly, should serve as a focus for public policy enhancing economic growth and development.[8]

The literature identifying mechanisms creating knowledge spillovers is sparse and remains underdeveloped. However, entrepreneurship is an important area where transmission mechanisms have been identified.[9] This will be explained below.

Cohen and Levinthal (1989) suggest that firms develop the capacity to adapt new technology and ideas developed in other firms and are therefore able to appropriate some of the returns accruing to investments in new knowledge made externally (i.e., outside their own organization). This view of spillovers is consistent with the traditional knowledge production function, where firms exist exogenously, and then make (knowledge) investments to generate innovative output. Audretsch (1995) proposes a shift in the unit of observation away from exogenously assumed firms towards individuals, such as scientists, engineers or other knowledge workers, i.e., agents with endowments of new economic knowledge. When the focus is shifted from the firm to the individual as the relevant unit of observation, the appropriability issue remains, but the question becomes how can economic agents with a given endowment of new knowledge best appropriate the returns from that knowledge? Albert O. Hirschman (1970) argues that, if voice proves to be ineffective within incumbent organizations, and loyalty is sufficiently weak, a knowledge worker may exit the firm or university where the knowledge is created in order to create a new company. In this spillover process the knowledge production function is reversed. Knowledge is exogenous and embodied in a worker and the firm is created endogenously through the worker's effort to appropriate the value of his knowledge by way of innovative activity. Hence, entrepreneurship serves as a mechanism by which knowledge spills over from the source to a new firm in which it is commercialized. There is a considerable history of people who only started their firms after large firms were uninterested in the innovation. This applies particularly to competence-destroying industries. Chester Carlsson started Xerox after his proposal to produce a new copy machine was rejected by Kodak. Steven Jobs started his Apple Computer after his proposal to produce a new personal computer was turned down by Xerox.

A *second* way in which entrepreneurship capital generates economic growth is through augmenting the number of enterprises and increasing competition. Jacobs (1969) and Porter (1990) argue that competition is more conducive to knowledge externalities than is local monopoly.[10] With local competition Jacobs (1969) is not referring to competition within product markets as has traditionally been envisioned within the industrial organization literature, but rather to the competition for new ideas embodied in economic agents. Not only does an increase in the number of firms

enhance the competition for new ideas, but greater competition across firms also facilitates the entry of new firms specializing in a particular new product niche. This is because the necessary complementary inputs are more likely to be available from small specialist niche firms than from large, vertically integrated producers. Feldman and Audretsch (1999) as well as Glaeser *et al*. (1992) found empirical evidence supporting the hypothesis that an increase in competition in a city, as measured by the number of enterprises, is accompanied by higher growth performance of that city.[11]

A *third* way in which entrepreneurship capital generates economic output is by providing diversity among firms (Cohen and Klepper, 1992). Not only does entrepreneurship capital generate a greater number of enterprises, it also increases the variety of enterprises in a certain location. A key assumption of Hannan and Freeman (1989) in the population ecology literature is that each new organization represents a unique formula.[12] There has been a series of theoretical arguments suggesting that the degree of diversity, as opposed to homogeneity, will influence the growth potential of a location.

The theoretical basis for linking diversity to economic performance is provided by Jacobs (1969), who argues that the most important sources of knowledge spillovers are external to the industry in which the firm operates and that cities are a source of considerable innovation because here the diversity of knowledge sources is greatest (Audretsch and Feldman, 1996; Jaffe *et al*., 1993). According to Jacobs (1969) it is the exchange of complementary knowledge across diverse firms and economic agents that yields an important return on new economic knowledge. He develops a theory emphasizing the argument that the variety of industries within a geographic environment promotes knowledge externalities and, ultimately, innovative activity and economic growth. In this environment entrepreneurship capital can contribute to growth and development by injecting diversity and serving as a conduit for knowledge spillovers, leading to increased competition. The entrepreneurial economy is characterized by a high reliance on this third role of entrepreneurship capital.[13]

4 Contrasting the entrepreneurial and managed economy models

The era of the managed economy is being supplanted by the emergence of the entrepreneurial economy. This suggests two contrasting models with a differing role of entrepreneurship. The model of the managed economy revolves around the links between stability, specialization, homogeneity, scale, certainty and predictability on the one hand and economic growth on the other. By contrast, the model of the entrepreneurial economy focuses on the links between flexibility, turbulence, diversity, novelty, innovation, linkages and clustering on the one hand and economic growth on the other. The

models of the managed and the entrepreneurial economy can be compared, distinguishing between different groups of characteristics, including underlying forces, external environment characteristics, internal or firm characteristics and policy characteristics.

4.1 Underlying forces

The first group of characteristics contrasts the forces underlying the models of the entrepreneurial and managed economy: localization versus globalization; change versus continuity; and jobs *and* high wages versus jobs *or* high wages.

In the model of the managed economy production results from the inputs of labor and capital (Solow, 1956). Geography provides a platform to combine (mobile) capital with (immobile) lower-cost labor (Kindleberger and Audretsch, 1983). In the model of the entrepreneurial economy knowledge is the dominant factor of production. The comparative advantage in the knowledge economy is dependent on innovative activity. Knowledge spillovers are an important source of this innovative activity. Hence, in the model of the entrepreneurial economy local proximity is important, with the region being the most important locus of economic activity, as knowledge tends to be developed in the context of localized production networks embedded in innovative clusters.

While the model of the managed economy focuses more on *continuity* (Chandler, 1977), the model of the entrepreneurial economy provokes and thrives on *change*. Although innovation is present under the conditions of both change and continuity, the locus of innovative activity differs. A distinction can be made between incremental and radical innovations. Innovations are considered incremental when they are compatible with the core competence and technological trajectory of the firm (Teece *et al.*, 1994). By contrast, a radical innovation can be defined as extending beyond the boundaries of the core competence and technological trajectory of the firm. In the model of the managed economy change is absorbed within a given technological paradigm, the average firm excels at incremental innovation. By contrast, in the model of the entrepreneurial economy, the capacity to break out of the technological lock-in imposed by existing paradigms is enhanced by the ability of economic agents to start new firms. Thus, incremental innovative activity along with diffusion plays a more important role in the model of the managed economy. While often requiring large investments in R&D, this type of innovative activity generates incremental changes in products along the existing technological trajectories. In the entrepreneurial economy model, the comparative advantage of the high-cost location demands innovative activity earlier in the product life cycle and which is of a more radical nature.

One of the most striking policy dilemmas in the model of the managed economy is that unemployment can be reduced only at the cost of lower wages. In the model of the entrepreneurial economy high employment can be combined with high wages and a low wage level does not imply high employment.[14] An indication of the absence of a trade-off between high wages and employment is the fact that, although corporate downsizing has been rampant throughout the OECD countries, there is a wide variance in unemployment rates. Audretsch *et al*. (2002) show that economies of OECD countries exhibiting characteristics in conformity with the entrepreneurial economy model have been more successful at creating new jobs to compensate for jobs lost in the process of corporate downsizing. Small firms in general, and new ventures in particular, are the engine of employment creation.[15] Under the model of the managed economy the job creation by small firms is associated with lower wages. However, the growth of new firms may generate not only greater employment, but also higher wages. New firm growth ensures that higher employment does not come at a cost of lower wages, but rather the opposite – higher wages. Hence, while small firms generate employment at a cost of lower wages in the model of the managed economy, in the entrepreneurial economy model small firms may create both more jobs and higher wages.[16]

4.2 External environment

The second group of characteristics contrasts the external environment characteristics of the models of the managed and the entrepreneurial economies. Turbulence, diversity and heterogeneity are central to the model of the entrepreneurial economy. By contrast, stability, specialization and homogeneity are the cornerstones in the model of the managed economy.

Stability in the model of the managed economy results from a homogeneous product demand, resulting in a low turnover rate of jobs, workers and firms. The model of the entrepreneurial economy is characterized by a high degree of turbulence. Each year many new firms are started and only a subset of these firms survives. Nelson and Winter (1982) argue that the role of diversity and selection is at the heart of generating change. This holds for both the managed and the entrepreneurial economy model. However, what differs in these models is the management and organization of the process by which diversity is created as well as the selection mechanism. In the model of the managed economy research activities are organized and scheduled in departments devoted to developing novel products and services. The management of change fits into what Nelson and Winter (1982) refer to as the firm's routines. The ability of existing businesses to manage the process of change pre-empted most opportunities for entrepreneurs to start new firms, resulting in a low start-up rate and a stable

industrial structure. In the model of the entrepreneurial economy the process of generating new ideas, both within and outside R&D laboratories, creates a turbulent environment with many opportunities for entrepreneurs to start new firms based upon different and changing opinions about different and changing ideas.

A series of theoretical arguments has suggested that the degree of *diversity* versus *specialization* may account for differences in rates of growth and technological development. While specialization of industry activities is associated with lower transaction costs and, therefore, greater (static) efficiency, diversity of activities is said to facilitate the exchange of new ideas and, therefore, greater innovative activity and (dynamic) efficiency. Because knowledge spillovers are an important source of innovative activity, diversity is a prerequisite in the model of the entrepreneurial economy where lower transaction costs are preferably sacrificed for greater opportunities for knowledge spillover. In the model of the managed economy, there are fewer gains from knowledge spillovers. The higher transaction costs associated with diversity yield little room for opportunities in terms of increased innovative activity, making specialization preferable in the model of the managed economy.

Whereas the trade-off between diversity and specialization focuses on firms, that between *homogeneity* and *heterogeneity* focuses on individuals. There are two dimensions shaping the degree of homogeneity versus heterogeneity. The first dimension refers to the genetic make-up of individuals and their personal experiences (Nooteboom, 1994) and the second dimension refers to the information set to which individuals are exposed. The model of the managed economy is based on homogeneity, that of the entrepreneurial economy on heterogeneity. In a heterogeneous population communication across individuals tends to be more difficult and costly than in a homogeneous population: transaction costs are higher and efficiency is lower. At the same time, new ideas are more likely to emerge from communication in a heterogeneous than in a homogeneous world. Although the likelihood of communication is lower in a heterogeneous population, communication in this environment is more prone to produce novelty and innovation. The lower transaction costs resulting from a homogeneous population in the model of the managed economy are not associated with high opportunity costs because knowledge spillovers are relatively unimportant in generating innovative activity. However, knowledge spillovers are a driving force in the model of the entrepreneurial economy, offsetting the higher transaction costs associated with a heterogeneous population.

4.3 How firms function

The third group of characteristics contrasts firm behavior of the models of the managed and the entrepreneurial economy: control versus motivation;

firm transaction versus market exchange; competition and cooperation as substitutes versus complements; and scale versus flexibility.

Under the model of the managed economy labor is considered as indistinguishable from the other input factors, as long as management is able to extract a full day's worth of energy for a full day's pay (Wheelwright, 1985). It is considered homogeneous and easily replaceable. In the managed economy model firms organize their labor according to the principles of *command and control*. Management styles emphasize the maintenance of tasks through direct forms of employee control. Under the model of the entrepreneurial economy, the command and control approach to labor is less effective as the comparative advantage of the advanced industrialized countries tends to be based on new knowledge. *Motivating* workers to facilitate the discovery process and implementation of new ideas is more important than requiring an established set of activities from knowledge workers. Management styles emphasize the nurturing of interpersonal relationships facilitating rather than supervising employees. In the entrepreneurial economy model the focus of activities is on exploring new abilities, rather than exploiting existing ones. Hence, under the model of the entrepreneurial economy, motivating employees to participate in the creation and commercialization of new ideas is more important than simply controlling and regulating their behavior. The distinction between controlling and motivating employees can be traced back to, and corresponds with, McGregor's (1960) Theory X and Y, autocratic versus democratic decision making (Lewin and Lippitt, 1938), task-oriented versus interpersonal oriented styles (Blake and Mouton, 1964) and transactional versus transformational leadership (Bass *et al*., 1996).[17] It has also been suggested that controlling versus motivating employees can be viewed as more masculine versus more feminine management styles (Van Engen, 2001), although a recent study by Verheul (2003) suggests that women are more control-oriented than men when managing employees.

Dating back to Coase (1937), and more recently to Williamson (1975), an analytical distinction can be made between *exchange via the market* and *intra-firm transactions*. Both Coase and Williamson emphasize that uncertainty and imperfect information increase the cost of intra-firm transactions. As Knight (1921) argued, low uncertainty, combined with transparency and predictability of information, make intra-firm transactions efficient relative to market exchange. In the managed economy model, where there is a high degree of certainty and predictability of information, transactions within firms tend to be more efficient than market exchange. By contrast, in the entrepreneurial economy model market transactions are more efficient because of the high uncertainty. Since the mid-1970s the economic arena has become increasingly uncertain and unpredictable (Carlsson, 1989; Carlsson

and Taymaz, 1994), as witnessed by a decrease in both mean firm size and the extent of vertical integration and conglomeration.

While models of *competition* generally assume that firms behave autonomously, models of *cooperation* assume linkages among firms. These linkages take various forms, including joint ventures, strategic alliances, and (in)formal networks (Gomes-Casseres, 1996, 1997; Nooteboom, 1999). In the model of the managed economy competition and cooperation are viewed as substitutes. Firms are vertically integrated and primarily compete in product markets. Cooperation between firms in the product market reduces the number of competitors and reduces the degree of competition. In the model of the entrepreneurial economy firms are vertically independent and specialized in the product market. The higher degree of vertical disintegration under the model of the entrepreneurial economy implies a replacement of internal transactions within a large vertically integrated corporation with cooperation among independent firms. At the same time, there are more firms, resulting in an increase in both the competitive and the cooperative interface. The likelihood of a firm competing or cooperating with other firms is higher in the entrepreneurial economy model.

Under the model of the managed economy costs-per-unit are reduced through expanding the scale of output, or through exploiting economies of *scale*. In product lines and industries where a large scale of production translates into a substantial reduction in average costs, large firms will have an economic advantage, leading to a concentrated industrial structure. The importance of scale economies has certainly contributed to the emergence and dominance of large corporations in heavy manufacturing industries, such as steel, automobiles, and aluminum (Chandler, 1977). The alternative source of reduced average costs is *flexibility* (Teece, 1993), characterizing the entrepreneurial economy model. Industries where demand for particular products is shifting constantly, require a flexible system of production that can meet such a whimsical demand.

4.4 Government policy

The final group of contrasting dimensions of the models of the entrepreneurial economy and the managed economy refers to government policy, including the goals of policy (enabling versus constraining), the target of policy (inputs versus outputs), the locus of policy (local versus national) and financing policy (entrepreneurial versus incumbent).

Under the model of the managed economy public policy towards the firm is essentially constraining in nature. There are three general types of public policy towards business: antitrust policy (competition policy), regulation, and public ownership. All three of these policy approaches restrict the firm's freedom to contract. Under the model of the managed economy

the relevant policy question is: How can the government withhold firms from abusing their market power? The entrepreneurial economy model is characterized by a different policy question: How can governments create an environment fostering the success and viability of firms? Whereas the major issues in the model of the managed economy are concerns about excess profits and abuses of market dominance, in the model of the entrepreneurial economy the issues of international competitiveness, growth and employment are important. In the managed economy model, the emphasis is constraining market power through regulation, whereas the focus in the entrepreneurial economy model is on stimulating firm development and performance through enabling policies.[18]

Another governmental policy dimension involves targeting selected *outputs* in the production process versus targeting selected *inputs*. Because of the relative certainty regarding markets and products in the model of the managed economy, the appropriate policy response is to target outcomes and outputs. Specific industries and firms can be promoted through government programs. Whereas in the model of the managed economy production is based on the traditional inputs of land, labor and capital, in the entrepreneurial economy model it is mainly based on knowledge input. There is uncertainty about what products should be produced, how and by whom. This high degree of uncertainty makes it difficult to select appropriate outcomes and increases the likelihood of targeting the wrong firms and industries. Hence, the appropriate policy in the model of the entrepreneurial economy is to target inputs, and in particular those inputs related to the creation and commercialization of knowledge.

The locus of policy is a third dimension on which the models of the managed and entrepreneurial economy can be compared. Under the model of the managed economy the appropriate locus of policy making is the national or federal level. While the targeted recipients of policy may be localized in one or a few regions, the most important policy-making institutions tend to be located at the national level. By contrast, under the model of the entrepreneurial economy, government policy towards business tends to be decentralized and regional or local in nature. This distinction in the locus of policy results from two factors. First, because the competitive source of economic activity in the model of the entrepreneurial economy is knowledge, which tends to be localized in regional clusters, public policy requires an understanding of regional–specific characteristics and idiosyncrasies. Secondly, the motivation underlying government policy in the entrepreneurial economy is growth and the creation of jobs (with high pay), to be achieved mainly through new venture creation. New firms are usually small and pose no oligopolistic threat in national or international markets. In the model of the entrepreneurial economy no external costs (in the form

of higher prices) are imposed on consumers in the national economy as is the case in the model of the managed economy. The promotion of local economies imposes no cost on consumers in the national economy. Hence, local intervention is justified and does not result in any particular loss incurred by agents outside the region.

Finally, financing policies vary between the two models. Under the model of the managed economy, the systems of finance provide the existing companies with just liquidity for investment.[19] Liquidity is seen as a homogeneous input factor. The model of the entrepreneurial economy requires a system of finance that is different from that in the model of the managed economy. In the model of the managed economy there is certainty in outputs as well as inputs. There is a strong connection between banks and firms, fostering growth. In the entrepreneurial economy model certainty has given way to uncertainty requiring different (or differently structured) financial institutions. In particular, the venture and informal capital markets, providing finance for high-risk and innovative new firms (Gaston, 1989; Gompers, 1999), play an important role in the model of the entrepreneurial economy. In this model, liquidity loses its homogeneous image and is often coupled with forms of advice, knowledge and changing levels of involvement.

Storey (2003) has painstakingly documented examples of policies predicted by the entrepreneurial model such as access to loan finance and equity capital, access to markets, administrative burdens, managed workspace, university spin-offs, science parks, stimulating innovation and R&D and training in small firms. See Storey (2003, Table 3).

5 Conclusions

The model of the managed economy seems to characterize most economies throughout the first three-quarters of the previous century. It is based on relative certainty in outputs (mainly manufactured products) and inputs (mainly land, labor and capital). The twin forces of globalization have reduced the ability of the managed economies of Western Europe and North America to grow and create jobs. On the one hand, there is the advent of new competition from low-cost, but relatively highly-educated and skill-intensive, countries in Central and Eastern Europe as well as Asia. On the other hand, the telecommunications and computer revolutions have drastically reduced the cost of shifting not just capital but also information out of the high-cost locations of Europe and into lower-cost locations around the globe. Taken together, these twin forces of globalization imply that economic activity in high-cost locations is no longer compatible with routinized tasks. Rather, globalization has shifted the comparative advantage of high-cost locations to knowledge-based activities, and in particular, intellectual search activities. These activities cannot be costlessly transferred around the

globe. Knowledge as an input into economic activity is inherently different from land, labor and capital. It is characterized by high uncertainty, high asymmetries across people and high transaction costs. An economy where knowledge is the main source of comparative advantage is more consistent with the model of the entrepreneurial economy.

This chapter has identified 14 dimensions that span the difference between the models of the entrepreneurial and managed economies and provide a framework for understanding how the entrepreneurial economy fundamentally differs from the managed economy. Building upon Audretsch and Thurik (2001) these contrasting models provide a lens through which economic events can be interpreted and policy measures formulated. Using the wrong lens leads to the wrong policy choice. For example, under the model of the managed economy, firm failure is viewed negatively, representing a drain on society's resources. In the model of the managed economy, resources are not invested in high-risk ventures. In the model of the entrepreneurial economy, firm failure is viewed differently, i.e., as an experiment, an attempt to go in a new direction in an inherently risky environment (Wennekers and Thurik, 1999). An externality of failure is learning. In the model of the entrepreneurial economy the process of searching for new ideas is accompanied by failure. Similarly, the virtues of long-term relationships, stability and continuity under the model of the managed economy give way to flexibility, change, and turbulence in the model of the entrepreneurial economy. What is a liability in the model of the managed economy is, in some cases, a virtue in the model of the entrepreneurial economy.

Notes

1. See Carree and Thurik (2003) for a literature survey spanning different strands.
2. See Whyte (1960) and Riesman (1950) for a description of the gray flannel suit and the organization man.
3. Early contributions of organization studies have shown that changes in the external organization affect the type of organization that is successful. For instance, Lawrence and Lorsch (1967) show that the more homogeneous and stable the environment, the more formalized and hierarchical the organization.
4. See van Stel (2003) or Verheul *et al.* (2002) for precise data and figures of the US development.
5. See also Kwoka and White (2001) who observe that, despite its importance in absolute and relative terms, the small business sector accounts for a diminishing share of US private sector activity. In van Stel (2003) it can be observed that the entrepreneurship rate in countries like Japan and France has dropped over a long period including the 1990s.
6. The influence of technological change on the shaping of business conditions has been widely discussed elsewhere in the late 1980s. See Piori and Sabel (1984) and Tushman and Anderson (1986).
7. While this may seem like a tautology, we are using the concept of entrepreneurial capital to characterize locations exhibiting a high degree of entrepreneurial capital.
8. For instance, see Scarpetta *et al.* (2002) where a firm-level database for ten OECD countries is used to present empirical evidence on the role that policy measures and institutions

in product and labor markets play for firm dynamics and productivity. Moreover, different features of entrant and exiting firms across countries are observed.

9. As Audretsch and Feldman (1996) point out, knowledge spillovers occur in the context of networks and clusters.
10. An anonymous referee pointed out that saying that competition is more conducive to knowledge externalities than a local monopoly is not the same as that new firms create more knowledge externalities.
11. See also Acs (2002) who hints at the dual causality between the growth of cities and that of the number of firms.
12. As opposed to the organizational ecology approach of Hannan and Freeman, institutional theorists in organization studies also point to strong pressures on new firms to conform (DiMaggio and Powell, 1983).
13. A different view on the role of knowledge and its spillovers is offered in the 'systems of innovations' approach (Nelson, 1993).
14. An anonymous referee pointed out that, clearly, the trade-off between involuntary unemployment and wages requires a *ceteris paribus* condition: if the productivity of workers increases then both employment and wages can increase.
15. Carree and Thurik (1999) show that a higher share of small business in European manufacturing industries leads to higher growth of value added in the subsequent years.
16. See Acs *et al*. (2002) and Scarpetta *et al*. (2002) for illustrating data material.
17. An anonymous referee refers to Ackroyd and Thompson (1999) for some entertaining examples on the subject within UK firms.
18. As an anonymous referee pointed out: enabling one section in society may entail constraining other sections. For instance, a major policy issue for small businesses in the UK is how government can withhold banks from abusing power in the market from small business banking, thereby fostering an environment in which small businesses can succeed.
19. See Hughes and Storey (1994), Storey (1994), Reid (1996) and the special issue of *Small Business Economics* devoted to European SME Financing (Cressy and Olofsson, 1997).

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