

# Entreprenomics: entrepreneurship, economic growth and policy

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**Abstract:** Entrepreneurship has emerged as an important element in the organization of economies. This emergence did not occur simultaneously in all developed countries. Differences in growth rates are often attributed to differences in the speed with which countries embrace entrepreneurial energy. This led to the political mandate to promote entrepreneurship. Hence, a clear and organized view is needed of what the determinants and consequences of entrepreneurship are. The present contribution tries to provide this view. Entrepreneurship, its drivers and its consequences can be best understood using the model of the *Entrepreneurial Economy* which explains the functioning of the modern economy. This functioning of the economy provides the basis for an *Entrepreneurship Policy Framework* in which determinants of entrepreneurship and the ways of public intervention are the essential elements.

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# 1. Introduction

In his *Theory of Economic Development*, Schumpeter (1934) emphasizes the role of the entrepreneur as prime cause of economic development. He describes how the innovating entrepreneur challenges incumbent firms by introducing new inventions that make current technologies and products obsolete thus driving them out of the market. This process of creative destruction is the main characteristic of what has been called the Schumpeter Mark I regime. Schumpeter developed his ideas during the first decades of the 20th century when small businesses were considered a vehicle for entrepreneurship and a source of employment and income.

However, the economies of scale and scope present in production, distribution, management and R&D dictated increasing firm size from the 1930s onwards (Chandler, 1990). Moreover, the growing level of economic development, together with high price elasticities stimulating price competition, favored large scale production. The increasing presence and role of large enterprises in the economy during this period is well documented (Audretsch, Thurik, Verheul and Wennekers, 2002). The importance of small business seemed to fade. At the same time it was recognized that the small business sector needed protection for social and political reasons, but not on the grounds of economic efficiency (Audretsch and Thurik, 2000).

In the years following the Second World War large firms had not yet gained the powerful position of the 1960s and 1970s and small businesses were still the main supplier of employment and hence of social and political stability (Thurik and Wennekers, 2004). Scholars, such as Bell (1960), Chandler (1977 and 1990), Galbraith (1956) and Schumpeter (1942), were convinced that the future was in the hands of large corporations and that small business would fade away as the victim of its own inefficiencies. In their classic work, Berle and Means (1932) investigated the then modern firm with its increasing size and role and with its hierarchy of management and its typical divide between management and control. The United States policy response to the rise of large corporations was aimed at a careful support of the small business sector for social and political reasons. The influence of the Great Depression emphasized this support. The passage of the Robinson-Patman Act (providing some measure of protection to small independent retailers and their independent suppliers from unfair competition from vertically integrated, multi-location chain stores) and the creation of the United States Small Business Administration (and a number of predecessor agencies) were aimed at protecting less efficient small businesses and maintaining their viability. These policy responses are typical for a Schumpeter Mark II regime. In *Capitalism, Socialism and Democracy*, Schumpeter (1942) focuses on innovative activities by large and established firms. He describes how large firms outperform their smaller counterparts in the innovation and appropriation process through a strong positive feedback loop from innovation to increased R&D activities. This process of creative accumulation is the main characteristic of the Schumpeter Mark II regime.

In the last twenty years of the 20<sup>th</sup> century, the joint effect of globalization and the ICT revolutions drastically reduced the cost of shifting both capital and information out of the high-cost locations of Europe and North America into low-cost locations around the world. Economic activity in a high-cost location is no longer compatible with routinized tasks. Rather, globalization has shifted the comparative advantage of high-cost locations to knowledge-based activities which cannot be transferred around the globe without significant cost. Knowledge as an input into economic activity is inherently different from the more traditional inputs such as land, capital and labor. It is characterized by high uncertainty, high asymmetries across people and is costly to transact. The response to a trend establishing knowledge as the main source of comparative advantage is the re-emergence of the *Entrepreneurial Economy*. In Audretsch and Thurik (2001 and 2004) the two Schumpeterian regimes are used in the framework of two broad concepts of eco-

conomic organization: the *Managed* and the *Entrepreneurial Economies*. They introduce the concept of the *Managed Economy* that flourished for most of the last century. It was based on relative certainty in outputs, which consisted mainly of manufactured products and which were brought forward by the traditional inputs of labor, capital and land. They contrast it to the model of the *Entrepreneurial Economy* based upon entirely different elements such as flexibility, turbulence, diversity, creativity and novelty, and new forms of linkages and clustering.

Entrepreneurship has emerged as an important element in the organization of economies. It has re-emerged from an era where mainstream thinking dictated a future where ever bigger organizational hierarchies would dominate. This emergence did not occur simultaneously in all developed countries. Differences in growth perspectives are often attributed to differences in the speed countries evolve from the *Managed Economy* to the *Entrepreneurial Economy*. The recognition that entrepreneurship helps fostering growth led to the political mandate to promote entrepreneurship. Hence, a clear and organized view is needed of what the determinants of entrepreneurship are. Entrepreneurship, its drivers and its consequences can be best understood using the model of the *Entrepreneurial Economy* which explains the functioning of the modern economy. This functioning of the economy should provide the basis for an *Entrepreneurship Policy Framework* in which determinants of entrepreneurship and the ways of public intervention are the essential elements.

The study of the role of entrepreneurship in the modern economy I label 'Entreprenomics'. The field is rooted in economics but has a distinctly eclectic flavor (Thurik, Wennekers and Uhlaner, 2002; Wennekers, Uhlaner and Thurik, 2002; Audretsch and Thurik, 2004). It has the vivid interest of policy makers. Often, it attempts to introduce the variable 'entrepreneurship' – whatever that may be – in subfields of economics like labor economics, economics of growth and economic development, industrial organization, enterprise policy, applied micro, and business economics, among others.

The purpose of the present contribution is to provide such an *Entrepreneurship Policy Framework*. It describes the *Managed Economy* and the emergence of the *Entrepreneurial Economy* in terms of data and conceptual material in section two. The models of the *Managed* and the *Entrepreneurial Economy* are compared in section three, distinguishing between different groups of characteristics, including underlying forces, external environment characteristics, internal or firm characteristics and policy characteristics. In section four the focus is on the links between entrepreneurship and growth, while section five tries to provide an account of why Europe reacted slower to the challenges of the *Entrepreneurial Economy* than the United States. The policy guidelines are in section six, where on the basis on an *Entrepreneurship Policy Framework* six channels of policy interventions to foster entrepreneurship and to bridge the gap between the *Managed Economy* to the *Entrepreneurial Economy* are proposed. These channels will be linked to the fourteen dimensions of the *Entrepreneurial Economy* described in section three. Section seven contains some concluding remarks.

## **2. The era of the managed economy and the emergence of the entrepreneurial one**

The large enterprise was clearly the dominant form of organization until the 1980s. Not surprisingly, Robert Solow (1956) suspected capital and labor as the main sources of growth, which in his later empirical work appeared to be the case only to a limited degree and which led to the introduction of the 'Solow residual'. Capital and labor, however, were factors best utilized in large scale production. Also, the increasing level of transaction costs (Coase, 1937) incurred in large-scale production demanded increasing firm size. Statistical evidence, gathered from both Europe and North America, points towards an increasing presence and role of large enterprises in

the economy in this period (Caves, 1982; Brock and Evans, 1989; Teece, 1993). 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’. Stability, continuity and homogeneity were the cornerstones of the *Managed Economy* (Audretsch and Thurik, 2001).

Large firms dominated this economy while small firms and entrepreneurship were viewed as a luxury. They were viewed as something Western countries needed to ensure decentralized decision making, obtained at the unfortunate cost of efficiency. A generation of scholars has investigated 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 in general and large-scale production in particular? (ii) What are the economic and welfare implications of an oligopolistic market structure? and (iii) What are the public policy implications?

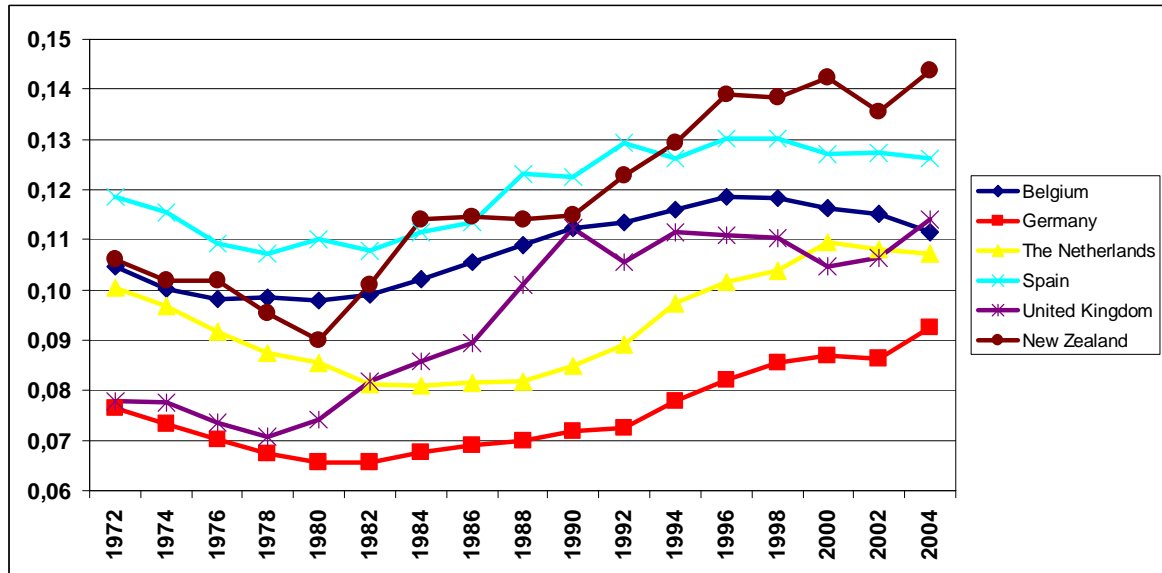
Many stylized facts were discovered about the role of small business in the post-war economies of North America and Western Europe. Four of these stylized facts will be mentioned here: *Small businesses are generally less efficient than their larger counterparts.* Studies from the United States in the 1960s and 1970s revealed that small businesses produced at lower levels of efficiency than larger firms (Weiss, 1976 and Pratten, 1971). *Small businesses are 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, Hamilton and Medoff, 1990; Brown and Medoff, 1989). *Small businesses are 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 is declining over time in both North America and Europe* (Scherer, 1991).

Given the careful documentation that large-scale production was driving out entrepreneurship, it came as a surprise when scholars first began to document that the alleged inevitable demise of small business began to reverse itself in the 1970s. Loveman and Sengenberger (1991) and Acs and Audretsch (1993) carried out analyses examining the re-emergence of small business and entrepreneurship in North America and Europe with two major findings emerging. 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 since the mid-1970s.

Acs and Audretsch (1993) were among the first to provide systematic data showing the increasing importance of small businesses. They show that the employment share in manufacturing of small firms in the Netherlands increased from 68.3 percent in 1978 to 71.8 percent in 1986. In the United Kingdom this share increased from 30.1 percent in 1979 to 39.9 percent in 1986; in (Western) Germany from 54.8 percent in 1970 to 57.9 percent by 1987; in Portugal from 68.3 percent in 1982 to 71.8 percent in 1986; in the North of Italy from 44.3 percent in 1981 to 55.2 percent in 1987, and in the South of Italy from 61.4 percent in 1981 to 68.4 percent in 1987. A study by EIM (2002) documents how the relative importance of small firms in 19 European countries, measured in terms of employment shares, has continued to increase between 1988 and 2001. See Figure 1 for the development of the self-employment rates (business owners per workforce) in a selection of OECD countries taken from van Stel (2005). Some U-shape can be observed for these countries when the reversal happened in the early eighties. This trough marks the beginning of what Audretsch and Thurik (2001) call the *Entrepreneurial Economy*. Recently, the upward trend of the self-employment leveled off in such countries as the UK, Belgium, Spain and Portugal (van Stel, 2005). In the UK this may be due to policy measures favoring incumbent businesses over start-ups (Thurik, 2003). In Belgium this may be due to the high level of eco-

economic development and to the shake out of industries that are in a more advanced stage than elsewhere in the area of modern OECD countries. In Spain it may be explained by the relatively high start-up costs (Verheul, van Stel, Thurik and Urbano, 2006). In Portugal consolidation and “shake-out” occurred in some markets leading to a reduction in the business ownership rate as the economy became more integrated into the EU market (Baptista and Thurik, 2006).

**Figure 1: Self-employment rates (business owners per workforce) in six OECD countries**



Source: Compendia 2004.2; see also van Stel (2005).

As the empirical evidence documenting the re-emergence of small businesses increased, scholars began to look for explanations and to develop theoretical underpinnings. Acs and Audretsch (1993) as well as Carlsson (1992) provide evidence of manufacturing industries in many countries. Carlsson advances two explanations for the shift toward smallness. The first deals with fundamental changes in the world economy from the 1970s onwards which relate to the intensification of global competition, the increase in the degree of uncertainty and the growth in market fragmentation. The second explanation deals with the introduction of flexible automation that effected a shift from large to smaller firms. The pervasiveness of changes in the world economy, and in the direction of technological progress, resulted in a structural shift affecting the economies of all industrialized countries. Piore and Sable (1984) argue that the instability of markets in the 1970s resulted in the demise of mass production and promoted flexible specialization. This fundamental change in the path of technological development led to the occurrence of vast diseconomies of scale. In other words: the level of transaction costs fell dramatically.

Brock and Evans (1989) show that this trend away from large firms has been economy-wide at least for the United States and provide four additional reasons why it has occurred: the increase of labor supply, particularly in the higher education levels, leading to lower real wages; changes in consumer tastes; relaxation of (entry and labor market) regulations; and the fact that the economic world went through a period of creative destruction. Loveman and Sengenberger (1991) point at two additional trends of industrial restructuring: that of horizontal and vertical disintegration (the breaking up of large plants and businesses) and that of the formation of new business communities. These intermediate forms of market coordination thrive owing to declining costs of transaction and exploit the virtues of learning and selection. Furthermore, they emphasize the role of public and private policies promoting the small business sector. Audretsch and Thurik (2000) suggest that the shift towards the knowledge based economy is the driving force behind

the shift from large to smaller businesses. Also, this economy works best when the inherent uncertainties and asymmetries of knowledge creation are absorbed by groups of small firms rather than by one dominant firm (Audretsch and Thurik, 2001 and 2004). Carree and Thurik (2003) try to explain the transition from increasing average firm size to decreasing firm size in a framework of ten key mechanisms, such as scale, scope, experience, organization, transportation, market size, adjustment, effectiveness, control and culture. The former four obstruct declining firm size while the latter six promote it. Overseeing all these sources, one may conclude that the re-emergence of small businesses is largely a consequence of new technological opportunities enabled by the information-technology revolution.

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. Entrepreneurship is shaped by a portfolio of forces and factors, including legal and institutional as well as social factors (Audretsch, Thurik, Verheul and Wennekers, 2002). The present paper will devote particular attention to the policy component in this portfolio. See Audretsch, Grilo and Thurik (2007) for some remarks on the economic rationale of public intervention.

### 3. Contrasting the entrepreneurial and managed models

The era of the *Managed Economy* was driven out with the emergence of the *Entrepreneurial Economy*. This suggests two contrasting models with important but different roles of entrepreneurship. While both the *Managed Economy* and the *Entrepreneurial Economy* models strive to explain how economic growth occurs, the foundations of said growth vary substantially. In the *Managed Economy*, economic growth happens through stability, specialization, homogeneity, scale, certainty and predictability, while flexibility, turbulence, diversity, novelty, innovation, linkages and clustering drive the *Entrepreneurial Economy* (Audretsch and Thurik, 2004). The models distinguish between different groups of characteristics, including underlying forces, external environment characteristics, internal or firm characteristics and policy characteristics. These forces are contrasted in Table 1.

The term ‘model’ may suggest that different economic laws are valid in the *Managed Economy* and the *Entrepreneurial Economy*. But the laws have not changed: what changed was the framework. The technology by the ubiquitous application of information technologies and the political context marked the end of the cold war and lowered of trade barriers. Table 1 also provides a column called ‘Channels of government intervention’. These six channels, described below, refer to six distinct ways in which policies can facilitate or discourage entrepreneurship. The column indicates which channel influences which dimension of the *Entrepreneurial Economy*.

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 with high wages *versus* jobs or high wages. The second group of characteristics contrasts the external environment characteristics of the models of the *Managed* and the *Entrepreneurial Economy*. 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*. 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. The final group of contrasting dimensions of the models of the *Entrepreneurial Economy* and the *Managed Economy* refers to government policy, including whether the goals of policy is enabling *versus* constraining, the target of policy works with inputs *versus* outputs, the locus of policy is local *versus* national and financing policy supports entrepreneurs *versus* incumbents.

**Table 1 Fourteen dimensions of the difference between the model of the Entrepreneurial and the Managed Economy and the channels of government intervention**

Category	<i>Entrepreneurial Economy</i>	<i>Managed Economy</i>	Channel of gvt intervention
Underlying forces			
	Localization	Globalization	G2
	Change	Continuity	G1
	Jobs with high wages	Jobs or high wages	G1, G5, G6
External environment			
	Turbulence	Stability	G5, G6
	Diversity	Specialization	G5, G6
	Heterogeneity	Homogeneity	G3, G4
How firms function			
	Motivation	Control	G4
	Market exchange	Firm transaction	G6
	Competition with cooperation	Competition or cooperation	G6
	Flexibility	Scale	G5, G6
Government policy			
	Enabling	Constraining	G4, G6
	Input targeting	Output targeting	G3, G5
	Local locus	National locus	G2
	Entrepreneurs	Incumbents	G5

Source: Audretsch and Thurik (2004).

The fourteen dimensions describing the difference between the models of the *Entrepreneurial* and *Managed Economy* are discussed in detail in Audretsch and Thurik (2004). Building upon Audretsch and Thurik (2001), these contrasting models provide a lens through which economic events can be interpreted and policy 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. It is seen 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 *Entrepreneurial Economy* model.

#### 4. Consequences of entrepreneurship

While, the switch from a *Managed Economy* regime to one of an *Entrepreneurial Economy* has been the subject of a multitude of investigations, the consequences of this regime change are yet another area of research. Acs (1992) began the discussion in an intuitive fashion. He claimed that small firms play an important role in the economy by serving as agents of change with their entrepreneurial action that generates innovative activity, stimulates industry evolution and creates many new jobs. Acs and Audretsch (1990) were the first to evaluate the new role of smallness in

the process of innovative activities. Baumol (1993) looked at the role of entrepreneurial activities and its possible effects. After these initial forays a huge amount of research developed showing the often positive relationship between smallness, entrepreneurship or a related indicator and any dimension of economic performance (Carree and Thurik, 2003 and 2006a).

Since the last decade of the 20th Century, small, and particularly new, businesses are seen more than ever as a vehicle for entrepreneurship, contributing not just to employment and social and political stability but also to innovative and competitive power (Wennekers and Thurik, 1999). The focus shifted from small businesses as a social good that should be maintained at an economic cost to small businesses as a vehicle for entrepreneurship and economic growth. Baumol was one of the first to justify the re-introduction of the entrepreneur into mainstream economics thinking after its virtual removal in the first few decades after the Second World War (Baumol, 1968). Indeed, recent econometric evidence suggests that entrepreneurship is a vital determinant of economic growth (Carree and Thurik, 1999; Audretsch and Fritsch, 2002; Audretsch, Carree, van Stel and Thurik, 2002; Carree, van Stel, Thurik and Wennekers, 2002 and 2007; Audretsch and Keilbach, 2004; Thurik, Carree, van Stel and Audretsch 2008; van Stel, Carree and Thurik, 2005). According to Audretsch, Carree, van Stel and Thurik (2002), a lack of entrepreneurship will lead to reduced economic growth. The positive link between entrepreneurship and economic growth has now been verified across a wide spectrum of units of observation, spanning the establishment, the enterprise, the industry, the region, and the country (Carree and Thurik, 2003).

Below three options are provided to better understand this positive link between entrepreneurship and economic growth. All three consist of three main arguments. The first is the 'shift from the *Managed Economy* to the *Entrepreneurial Economy*' view (Audretsch and Thurik, 2001) with its empirical support. The second is the historical view of entrepreneurial roles (Carree and Thurik, 2003) and the third the entrepreneurial capital view (Audretsch and Thurik, 2004; Audretsch and Keilbach, 2004; Audretsch, Keilbach and Lehman, 2006).

The shift from the *Managed Economy* to the *Entrepreneurial Economy* has many consequences. The most important is the changing and growing role of entrepreneurship and small firms as drivers of growth. The role of smallness in the process of innovative activities is investigated extensively by Acs and Audretsch (1990) and Audretsch (1995). A discussion of the relation between the role of small firms and industry dynamics can be found in Audretsch (1995). Foelster (2000) and Acs and Armington (2004) are among the many studies showing the job generation effect of entrepreneurship. An alternative and wide view of the impact of the regime change is that of the institutional change that makes the difference between high and low performance. For example, Saxenian (1990 and 1994) attributes the superior performance of Silicon Valley to a high capacity for promoting entrepreneurship.

The roles of innovations, of the job generation process and of institutional environments are examples of why the *Entrepreneurial Economy* works differently from the *Managed Economy*. Using Global Entrepreneurship Monitor (GEM) data and a model controlling for several alternative drivers of growth, van Stel, Carree and Thurik (2005) find that entrepreneurial activity affects economic growth, but that this effect depends upon the level of per capita income in that entrepreneurship has a negative impact on GDP growth for developing countries and a positive one for developed countries. In other words: entrepreneurship has a different role in the *Managed Economy* versus the *Entrepreneurial Economy*. Using worked up OECD data of 23 developed countries data Carree, van Stel, Thurik and Wennekers (2002) show that there is some evidence of a U-shaped relation between economic development and the rate of entrepreneurship (business owners per workforce). This evidence is weaker in their 2007 update (Carree, van Stel, Thurik and Wennekers, 2007). They suggest that a 'Schumpeterian Regime Switch' occurred. Piore and Sabel (1984) call it an 'Industrial Divide' while Jensen (1993) refers to the 'Third Industrial



Revolution'. After economic regime change, whatever it is called, there is a positive relation between entrepreneurship and economic development.

Carree and Thurik (2003) focus on three entrepreneurial roles, emphasized by Schumpeter, Kirzner and Knight, respectively. The first is the role of innovator. Schumpeter was the economist who has most prominently drawn attention to the "innovating entrepreneur who carries out "new combinations we call enterprise; the individuals whose function it is to carry them out we call entrepreneurs" (Schumpeter 1934, p. 74). The second is the role of perceiving profit opportunities labeled Kirznerian (or neo-Austrian) entrepreneurship (Kirzner, 1997). The third role is that of assuming the risk associated with uncertainty labeled Knightian entrepreneurship or "neo-classical entrepreneurship" (Shane, 2000). In the neo-classical framework, entrepreneurship is explained by fundamental attributes of people (like "taste" for uncertainty). When an individual introduces a new product or starts a new firm, this can be interpreted as an entrepreneurial act in terms of at least one of the three types of entrepreneurship. The individual is an innovator, has found a previously undiscovered profit opportunity and takes the risk that the product or venture may turn out to be a failure. A lack of entrepreneurial activity or alertness is therefore directly connected to low rates of innovation, unused profit opportunities and risk-averse attitudes. These are important barriers preventing healthy economic development.

Audretsch and Thurik (2004) have a different approach and distinguish three ways in which entrepreneurial capital affects growth. See also Audretsch, Keilbach and Lehman (2006). The *first* way is by creating knowledge spillovers. Romer (1986), Lucas (1988, 1993) and Grossman and Helpman (1991) established that knowledge spillovers help drive economic growth. Insight into the process of knowledge spillovers is important, especially since a policy implication commonly drawn from new economic growth theory is that, due to the increasing role of knowledge and the resulting increasing returns, knowledge generators, such as R&D, should be publicly supported. The literature identifying the creation of knowledge spillover mechanisms (the way knowledge is transmitted across firms and individuals) is underdeveloped. However, entrepreneurship is an important area where some of the transmission mechanisms have been identified. 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. 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. 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? In this spillover process, where a knowledge worker may exit the firm or university in order to create a new company, 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 to a new firm in which it is commercialized.

The *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 local monopolies. With local competition Jacobs (1969) is not referring to competition within product markets as traditionally envisioned by 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 available from small specialist niche firms than from large, vertically integrated producers. Glaeser, Kallal, Scheinman and Shleifer (1992) as well as

Feldman and Audretsch (1999) found empirical evidence supporting the hypothesis that an increase in competition within a city, as measured by the number of enterprises, is accompanied by higher growth performance of that city. Van Stel and Nieuwenhuijsen (2004) found that this competition effect may prevail in particular for manufacturing industries.

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 firms, it also increases the variety of firms in a geographic space. 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 geographic environment. The 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, Trajtenberg and Henderson, 1993). According to Jacobs it is the exchange of complementary knowledge across diverse firms and economic agents that yields an important return on new economic knowledge. In her view, the geographic environment is essential for promoting knowledge externalities which lead to innovative activity and subsequent economic growth. In this environment, entrepreneurship capital can contribute to growth 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 because it serves as basis for the first two roles.

## 5. The response of Europe

Thus, while entrepreneurship has always mattered to policy makers, the way in which it has mattered has drastically changed. Audretsch and Thurik observe that “entrepreneurship has emerged as the engine of economic and social development throughout the world” (2004, p. 144). Confronted with increasing concerns over unemployment, job creation, economic growth and international competitiveness in global markets, policy makers have responded to this new evidence with a new mandate promoting new businesses creation, i.e., entrepreneurship (Reynolds, Hay, Bygrave, Camp and Autio, 2000). Initially, European policy makers were relatively slow to recognize these links but since the mid-1990s have rapidly built momentum in crafting appropriate approaches (EIM/ENSR, 1993 through 1997 as well as Audretsch, Thurik, Verheul and Wennekers, 2002). Yet, without a clear and organized view of where and how entrepreneurship manifests itself, policy makers do not know how to promote it. This explains the variation in their responses (European Commission, 2000 and 2001 and Audretsch, Thurik, Verheul and Wennekers, 2002). The so-called Green Paper on Entrepreneurship of the European Commission (European Commission, 2003) was the first EU document extolling the virtues of entrepreneurship as the most important driver in the economy and paving the way for Union-wide stimulation programs. Currently, it is deeply embedded in current European policy that the creativity and independence of entrepreneurs contribute to higher levels of economic activity. Indeed, “the challenge for the European Union is to identify the key factors for building a climate in which entrepreneurial initiative and business activities can thrive. Policy measures should seek to boost the Union’s levels of entrepreneurship, adopting the most appropriate approach for producing more entrepreneurs and for getting more firms to grow” (European Commission, 2003, p. 9).

It is generally believed that the United States has been much quicker to absorb the merits of entrepreneurship than Europe based upon the different growth rates of the United States when compared to European nations over the last twenty years. Indeed, the European countries have been relatively slow to follow suit. Clearly, the European response varied across countries. Nevertheless, by and large five distinct stages can be discerned of the evolution of the European

stance towards the *Entrepreneurial Economy* (Audretsch, Thurik, Verheul and Wennekers, 2002, p. 4-6).

The *first* stage was denial. During the 1980s and early 1990s, European policy makers looked to Silicon Valley with disbelief. Europe was used to facing a competitive threat from the large well-known multinational American corporations; not from nameless and unrecognizable start-up firms in exotic industries such as software and biotechnology. Twenty years ago the emerging firms such as Apple Computer and Intel were interesting but were irrelevant competitors in the automobile, textile, machinery and chemical industries; then the obvious engines of European competitiveness.

The *second* stage, during the mid-1990s, was recognition. Europe recognized that the *Entrepreneurial Economy* in Silicon Valley delivered a sustainable long-run performance. But it held to its traditional products while embracing the theory of comparative advantage and channeling resources into traditional moderate technology industries. During this phase Europe's most important economy, Germany, would provide the automobiles, textiles and machine tools. The *Entrepreneurial Economy* of Silicon Valley, Route 128 and the Research Triangle would produce the software and microprocessors. Each continent would specialize in its comparative advantage and then trade with each other.

The *third* stage, during the second half of the 1990s, was envy. As Europe's growth stagnated and unemployment soared, the capacity of the American *Entrepreneurial Economy* to generate both jobs and higher wages became the object of envy. The United States and Europe adhered to different doctrines: as the *Entrepreneurial Economy* diffused across the United States, European policy makers, particularly in large countries such as Germany and France, despaired that European traditions and values were simply inconsistent and incompatible with the *Entrepreneurial Economy*. They should have concluded that the concept of comparative advantage had yielded to the different, but better, concept of dynamic competitive advantage.

The *fourth* stage, during the last years of the twentieth century, was consensus. European policy makers reached a consensus that - in the terminology of Audretsch and Thurik (2001) - the new *Entrepreneurial Economy* was superior to the old *Managed Economy* and that a commitment had to be forged to creating a new *Entrepreneurial Economy*. A broad set of policies were instituted to create a new *Entrepreneurial Economy*. European policy makers looked across the Atlantic and realized that if places such as North Carolina, Austin, and Salt Lake City could implement targeted policies to create the *Entrepreneurial Economy*, European cities and regions could as well. After all, Europe had a number of advantages and traditions, such as a highly educated and skilled labor force, world-class research institutions and its variety in cultures and hence innovative approaches to new products and organizations. These phenomena would provide a perfect framework for absorbing the high levels of uncertainty inherent to the *Entrepreneurial Economy* (Audretsch and Thurik, 2001).

The *fifth* stage is attainment. There are signs that an *Entrepreneurial Economy* is finally emerging in Europe. Consider the Green Paper on Entrepreneurship of the European Commission (European Commission, 2003) which aims to stimulate debate amongst policy makers, businesses, representative organizations, journalists and scientific experts on how to shape entrepreneurship policy. It analyses a range of policy options and asks, within the proposed context for entrepreneurship policy, a number of questions suggesting different options on how to reach progress. See Audretsch, Thurik, Verheul and Wennekers (2002) for further information on the five stages and some country studies on the determinants of entrepreneurship. See Grilo and Thurik (2005a) for comparative studies of entrepreneurial engagement levels in Europe as well as Grilo and Thurik (2005b and 2006) for the state of latent and actual entrepreneurship in Europe, respectively.

## 6. An entrepreneurship policy framework including six channels of intervention

The scientific recognition that entrepreneurship helps fostering growth led to the political mandate to promote entrepreneurship. Policy makers, however, need a clear and organized view of what are the determinants of entrepreneurship. Entrepreneurship, its drivers and its consequences can be best understood using the model of the *Entrepreneurial Economy* which is concerned with the functioning of the modern economy. The determinants of entrepreneurship and the ways of public intervention are the essential elements of the *Entrepreneurship Policy Framework*.

One of the reasons that policy makers and scholars have traditionally had little guidance in understanding why entrepreneurship varies temporally and geographically is that it is an interdisciplinary subject. As it crosses multiple units of observation and analysis, including individuals, groups, enterprises, cultures, geographic locations, industries, countries, and particular episodes of time, it is exceptionally difficult to adequately capture. Researchers in a broad range of fields, including management, finance, psychology, sociology, economics, political science and geography can all stake a claim as entrepreneurial experts. However, while any particular discipline may be well suited to analyze some unit of observations, none are equipped to analyze them all. These multidimensional aspects of entrepreneurship include both stock and flow variables (the number of business owners and the change of the number of entrants or exits), cover many qualitative aspects (mom and pop entry, high growth ventures, cutting-edge technological firms, etc.). Moreover, there is a discrimination between occupational and behavioral entrepreneurship (Wennekers, 2006) because entrepreneurial activity (defined for instance as behavior concentrating on opportunities) may occur not only in businesses - both small and large - but also outside the business world (Stevenson and Gumpert, 1991; Low, 2001; Davidsson, 2004).

Below an *Entrepreneurship Policy Framework* of the determinants of entrepreneurship will be presented that integrates the different strands from the relevant fields of enquiry. The *Entrepreneurship Policy Framework* is inspired by the earlier works of Verheul, Wennekers, Audretsch and Thurik (2002), as well as Wennekers, Uhlaner and Thurik (2002) but leaning most heavily on Audretsch, Grilo and Thurik (2007). It explains the level of entrepreneurship by making a distinction between the supply side of entrepreneurship (labor market perspective where the capabilities are the outcome) and the demand side of entrepreneurship (product market perspective where the carrying capacity of the market in terms of business opportunities is the outcome) while integrating those factors shaping the demand for entrepreneurship on the one hand, with those influencing the supply of entrepreneurs on the other. While both the demand and supply sides are influenced by many factors, what results is a level of entrepreneurship that is determined by these two sides. The second goal of the *Entrepreneurship Policy Framework* is to create insight into the role of government policy by identifying six channels of intervention and policy instruments. See Figure 2.

Figure 2 about here

Three levels of analysis are distinguished when explaining entrepreneurship: the micro, industry and macro level covering the individual entrepreneur or business, sectors or regions of industry and the national economy, respectively. Studies at the micro level focus on the decision-processes of individuals and their motives for becoming self-employed (Parker, 2004; Grilo and Irigoyen, 2006). They are concerned with personal factors: psychological traits, formal education and other skills, financial assets, family background and previous work experience. Studies at the industry (regional) level of entrepreneurship focus on the market-specific determinants of entre-

preneurship, such as profit opportunities and opportunities, for entry and exit (Carree and Thurik, 1999). The macro perspective focuses on a range of environmental factors, such as technological, economic and cultural variables as well as government regulation (Wennekers, Uhlaner and Thurik, 2002).

Technology developments and demand shifts given resource availability thus generate new business opportunities. These can be exploited either by existing firms or through the creation of new ventures by new entrepreneurs entering the market. When this exploitation of opportunities takes place in large incumbent firms it is commonly referred to as “corporate entrepreneurship” or “intrapreneurship”. Although intrinsically part of the *Entrepreneurial Economy* this form of entrepreneurial behavior will not be further discussed here. The extent to which incumbents rather than new firms fill the market gap created by technological or preference evolution depends on a variety of elements, some of which can be influenced by governmental intervention. Competition policy, protection of intellectual property rights, product and labor market regulatory environment are examples of interventions influencing this partition of opportunities` exploitation between incumbent firms and potential new entrants. In Figure 2, the box “Business Opportunities” and its dotted line schematically represent this.

Potential entrepreneurs must recognize business opportunities, possess the ability and resources to pursue them and be willing to do so rather than taking up other potentially rewarding outside options such as present or alternative employment positions or unemployment. The box “Capabilities” in Figure 2 represents the individual characteristics of potential entrepreneurs, their abilities, their access to resources necessary to start a business and their intrinsic preferences between leisure and income as well as their attitudes towards risk.

The individual decision process that potential entrepreneurs experience when confronted with the choice between the entrepreneurial venture based upon the opportunities (that best matches their capabilities) and the best “outside” option is central in the *Entrepreneurship Policy Framework*. This process is covered by the box “Choice Filter”. The risk reward profile of each available option will depend on the entrepreneur’s abilities and resource access, while the final arbitrage between the entrepreneurial option and the outside option will depend upon individual preferences and, in particular, upon risk attitudes. This is represented by the arrows linking “Capabilities” to “Choice Filter”. Figure 2 shows two arrows from “Business Opportunities” to “Choice Filter” because the spectrum of available opportunities influences not only the risk reward profile of the “best to the individual” entrepreneurial venture but also the profile of the outside option. This second link takes into consideration the effect that opportunities taken up either by incumbent firms or by other potential entrepreneurs may have on alternative employment possibilities (the so-called outside options).

The “Business Opportunities” box represents the demand conditions for entrepreneurship while the “Capabilities” box relates to the supply conditions of entrepreneurship. The “Capabilities” box is fed with factors which are not individually specific but rather aggregate characteristics of society to which the individual belongs. These factors have a quantitative demographic dimension as well as a qualitative cultural one. Nevertheless, they are also important in shaping the supply conditions of entrepreneurship. These demand and supply conditions should not be confused with the stricter demand and supply sides in regular economic modeling. At this point in the set-up entrepreneurs are no commodities that can be sold or bought in a market. Instead, they are people who act as potential suppliers in particular product markets. That is why the occupational choice filter is introduced.

Entry and exit rates of entrepreneurship at the aggregate level follow directly from the occupational choices made at the individual level: there is an arrow from the “Choice Filter” box to the box “ $\Delta E$ ” (Entry and Exit). People have various employment alternatives to evaluate. Employed people can exchange their wage jobs (or unemployment) for self-employment; they can

remain in the category of employment they are currently in, or they can exit from self-employment. These occupational decisions determine the actual level of entrepreneurship,  $E$ , in the “Entrepreneurial Activity (Discrepancy)” box. It is assumed that there is a feedback effect where entry and exit impact the occupational choice made in the “Choice Filter”. This ‘demonstration effect’ represents the influence that entry and exit exert on the (perceived) attractiveness of self-employment for individuals. In other words: if many people enter self-employment other people may be persuaded to also make that choice, independent of the regular evaluation of the entrepreneurial option versus the outside option on the basis of capabilities and business opportunities for new firms.

The actual rate of entrepreneurship may deviate from the ‘equilibrium’ rate of entrepreneurship,  $E^*$  in the “Entrepreneurial Activity (Discrepancy)” box. Carree, van Stel, Thurik and Wennekers (2002 and 2007) present evidence of a long-term relationship between the stage of economic development and the ‘equilibrium’ level of business ownership and suggest that countries where the business ownership rate does not equal the equilibrium rate suffer from a lower rate of macro-economic growth. See also Audretsch, Carree, van Stel and Thurik (2002) who introduce the term “growth penalty”. In this respect the equilibrium level should be interpreted as a ‘normative’ or ‘average’ level and not as derived in the formal economics context. The ‘discrepancy’ between the actual number of entrepreneurs and the long-term equilibrium rate ( $E - E^*$  in box “Entrepreneurial Activity (Discrepancy)”) may be the result of cultural forces and institutional settings. Examples are the regulation of entry, incentive structures and the functioning of the capital market (Davis and Henrekson, 1999; Henrekson and Johansson, 1999; Carree, van Stel, Thurik and Wennekers, 2002 and 2007). The ‘discrepancy’ can be removed either through market forces or government intervention. The capacity of the market to remove the ‘discrepancy’ works through (the valuation of) the number and type of business opportunities. Therefore, there is a feedback loop from the “Entrepreneurial Activity (Discrepancy)” box to the “Business Opportunities” box to reflect the fact that a surplus or lack of business opportunities may be the consequence of the entry and exit of entrepreneurs in earlier periods. A high level of unemployment can push people into self-employment due to the relatively low opportunity costs of entrepreneurship (Evans and Leighton, 1989; Storey, 1991; Audretsch and Thurik, 2000). Moreover, a number of business owners in excess of the ‘equilibrium’ rate will lower profitability, due to higher competition, resulting in higher exit or failure rates and lower entry.

The dynamics set in motion by market forces as described above will bridge the gap between actual and long-term ‘equilibrium’ entrepreneurship. Moreover, one can also take a more normative stance and discuss the concept of  $E^*$  from the perspective of the policy making government:  $E^*$  can be viewed as the (government)-perceived ‘optimal’ or target entrepreneurship. Its level depends on the social choice function of the government, on its perception of existence of market failures and distortions and on its beliefs concerning the leeway to correct these market failures. These elements will determine the extent to which the government is willing to intervene in the economy and through which of the channels it wants to intervene. See Audretsch, Grilo and Thurik (2007) for a discussion of these elements. In short, depending on the nature of the (assumed) discrepancy, the government can try to intervene through policies fostering or restricting entrepreneurship. Below six channels of policy intervention, G1 through G6, are distinguished (Audretsch, Grilo and Thurik, 2007).

‘Channel 1’ public intervention (as represented by arrow ‘G1’ in Figure 2) deals with the demand side of entrepreneurship and is meant to affect the type, number and accessibility of entrepreneurial opportunities. A distinction is made between demand side policies creating room for entrepreneurship (policies stimulating technological developments and income policy) and policies affecting the accessibility of markets (competition policy and establishment legislation). The latter type of intervention enables entrepreneurs to make use of the available room and will be dealt with under ‘Channel 6’. Technological advancements create opportunities for entrepreneu-

rial ventures through new ideas or new application processes. These advancements can be stimulated by the government through (subsidizing) expenditures on R&D. Income policy can create opportunities for entrepreneurship because, for instance, a higher wealth or income disparity level may stimulate the demand for tailor-made products and services and thereby stimulating demand for entrepreneurship (Wennekers, Uhlaner and Thurik, 2002). ‘Channel 1’ public intervention aims in particular at the ‘change’ and ‘jobs with high wages’ dimensions of the *Entrepreneurial Economy* model as described in Table 1. ‘Channel 2’ public intervention (as represented by arrow ‘G2’) deals with the supply side of entrepreneurship and is meant to impact the number of potential and future entrepreneurs at the aggregate (population). ‘G2’ intervention policies range from immigration policy to regional development policy (dealing with (sub)-urbanization processes), influencing the composition and the dispersion of the population, respectively. Moreover, the fiscal treatment of families with children, including family allowances or child benefits, may influence the age structure of the population and the number of (potential) entrepreneurs in the long run. ‘Channel 2’ public intervention aims in particular at the ‘localization’ and ‘local locus’ dimensions of the *Entrepreneurial Economy* model as described in Table 1. ‘Channel 3’ public intervention (as represented by arrow ‘G3’) is meant to influence the abilities and resources of potential entrepreneurs. Government policy can help bridge financial and knowledge gaps by making available financial and informational resources, respectively. For example, policies aimed at the (development of the) venture capital market can help improve the access of business owners to the financial capital needed to start or expand a business. Direct financial support, such as subsidies, grants and loan guarantees, can also increase the availability of resources of (potential) entrepreneurs. The skill and knowledge base of (potential) entrepreneurs can be influenced through the direct provision of relevant ‘business’ information, such as advice and counseling, or through the educational system. However, innate characteristics, such as learning capacity and personality traits, are difficult to develop through education and training. ‘G3’ policies can be typified as input-related policies, since they refer to both material, such as financial capital, and immaterial, such as knowledge, inputs in the entrepreneurial process. ‘Channel 3’ public intervention aims in particular at the ‘heterogeneity’ and ‘input targeting’ dimensions of the *Entrepreneurial Economy* model as described in Table 1.

‘Channel 4’ public intervention (as represented by arrow ‘G4’) works through the preferences of individuals to become an entrepreneur. Preferences of people, including their evaluation of risks, are developed during upbringing. Values and attitudes are the expression of these preferences and while, to a large extent, being determined by cultural background, they are difficult to influence or modify (Freitag and Thurik, 2007). ‘G4’ policies are typically characterized by their pervasive but indirect and lagged effect on society. This is often referred to as ‘fostering an entrepreneurial culture’. For example, entrepreneurial values and attitudes can be shaped by introducing entrepreneurial elements in the educational system and by paying attention to entrepreneurship in the media. ‘Channel 4’ public intervention aims in particular at the ‘heterogeneity’, ‘motivation’, and ‘enabling’ dimensions of the *Entrepreneurial Economy* model as described in Table 1.

‘Channel 5’ public intervention (as represented by arrow ‘G5’) is directed at the decision-making process of individuals, i.e., potential entrepreneurs. Given opportunities, abilities, resources and preferences, the evaluation of the entrepreneurial option versus outside options like unemployment and employment can be influenced by this type of government intervention. Relevant policies are taxation influencing business earnings, social security arrangements influencing the willingness of people to give up their present state of (un)-employment to become an entrepreneur, and labor market legislation regarding hiring and firing, thereby determining the flexibility of the business and the attractiveness to start or continue a business. Bankruptcy policy can also influence the risk-reward profile. For example, people may shy away from self-employment when legal consequences of bankruptcy are severe. ‘Channel 5’ public intervention aims in par-

ticular at the ‘jobs and high wages’, ‘turbulence’, ‘diversity’, ‘flexibility’, ‘input targeting’ and ‘entrepreneurial’ dimensions of the *Entrepreneurial Economy* model as described in Table 1.

‘Channel 6’ public intervention (as represented by arrow ‘G6’) involves the demand side of entrepreneurship and influences the accessibility of markets. While ‘G1’ policies influence the size of the markets ‘G6’ policies like competition policy are meant to improve the accessibility of markets. For instance, ‘G6’ policies aim at reducing market power of large firms and at lowering barriers to entry for small businesses. Protection of property rights and the regulatory environment of product and labor markets are further examples. Lastly, through establishment and bankruptcy legislation the government can influence the accessibility of markets. When establishment requirements and bankruptcy legislation are strict and opaque (potential) entrepreneurs can be discouraged to exploit business opportunities and to fill in the market gaps. ‘Channel 6’ public intervention aims in particular at the ‘jobs with high wages’, ‘turbulence’, ‘diversity’, ‘market exchange’, ‘competition with cooperation’, ‘flexibility’, and ‘enabling’ dimensions of the *Entrepreneurial Economy* model as described in Table 1.

## 7. Concluding remarks

Entrepreneurship has emerged as an important element in the organization of economies. Its role has changed dramatically over the last half century. “Entrepreneurship has emerged as the engine of economic and social development throughout the world” (Audretsch and Thurik, 2004, p. 144). This emergence did not occur simultaneously in all developed countries. Using survey data Grilo and Thurik (2005b) give a detailed account of the differences in the actual and latent entrepreneurship rates in the 15 old member states of the European Union. They show that four times as many Greeks answer positively to the question that they are involved in some form of entrepreneurship than French people. Similarly, twice as many Portuguese people answer that they want to be entrepreneurs (latent entrepreneurship) than Finnish citizens. A quickly developing literature shows that differences in national growth rates are often attributed to differences in the speed with which countries embrace entrepreneurial energy.

The increased importance of entrepreneurship is clearly recognized by politicians and policy makers. For example, it is deeply embedded in the current European policy approach that the creativity and independence of entrepreneurs can contribute to higher levels of economic activity. Indeed, “the challenge for the European Union is to identify the key factors for building a climate in which entrepreneurial initiative and business activities can thrive. Policy measures should seek to boost the Union’s levels of entrepreneurship, adopting the most appropriate approach for producing more entrepreneurs and for getting more firms to grow” (European Commission, 2003, p. 9). Hence, clear and organized views are needed of what the determinants and consequences of entrepreneurship are.

The increased importance of entrepreneurship is also recognized in the domain of scientific research. In the last decade or so the field of economics contributed significantly to providing views of what the determinants and consequences of entrepreneurship are. The *Kauffman-Max Planck Conference on Entrepreneurship and Economic Policy* (Rinberg Castle, Rottach Egern, 8-9 May 2006) and the present book are among the many examples of this contribution. Earlier in the present paper I termed this approach ‘entreprenomics’.

The present contribution tries to provide an example of such a view. Entrepreneurship, its drivers and its consequences can be best understood using the model of the *Entrepreneurial Economy* which explains the functioning of the modern economy. It is argued 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 is often identified as replacing the more traditional factors as the source of competitive advantage - but also by a very different, but complementary, factor: entrepreneurship capital, or the capacity to engage in and generate entrepreneurial activity. Knowledge or R&D can only spill over to the advantage of the entire economy in the context of generous entrepreneurial activity.

The functioning of the *Entrepreneurial Economy* provides the basis for an *Entrepreneurship Policy Framework* in which determinants of entrepreneurship and the ways of public intervention are described. The purpose of the *Entrepreneurship Policy Framework* is to provide a unified framework for understanding and analyzing what determines entrepreneurship. The *Entrepreneurship Policy Framework* of entrepreneurship integrates the different strands from the relevant fields into a unifying, coherent framework. At the heart of the *Entrepreneurship Policy Framework* is the assumption that the level of entrepreneurship can be explained making a distinction between the supply side (labor market perspective) and the demand side (product market perspective; carrying capacity of the market) of entrepreneurship. While both the demand and supply sides are formed by many factors, what results is a level of entrepreneurship that is equilibrated by these two sides. In this equilibration the entrepreneurial choice filter plays a crucial role covering the individual decision process that potential entrepreneurs experience evaluating the entrepreneurial option against 'outside' options. The *Entrepreneurship Policy Framework* also creates insight into the role of government policy through identifying six channels influencing the demand side, the supply side and the characteristics of the choice filter by policy instruments.

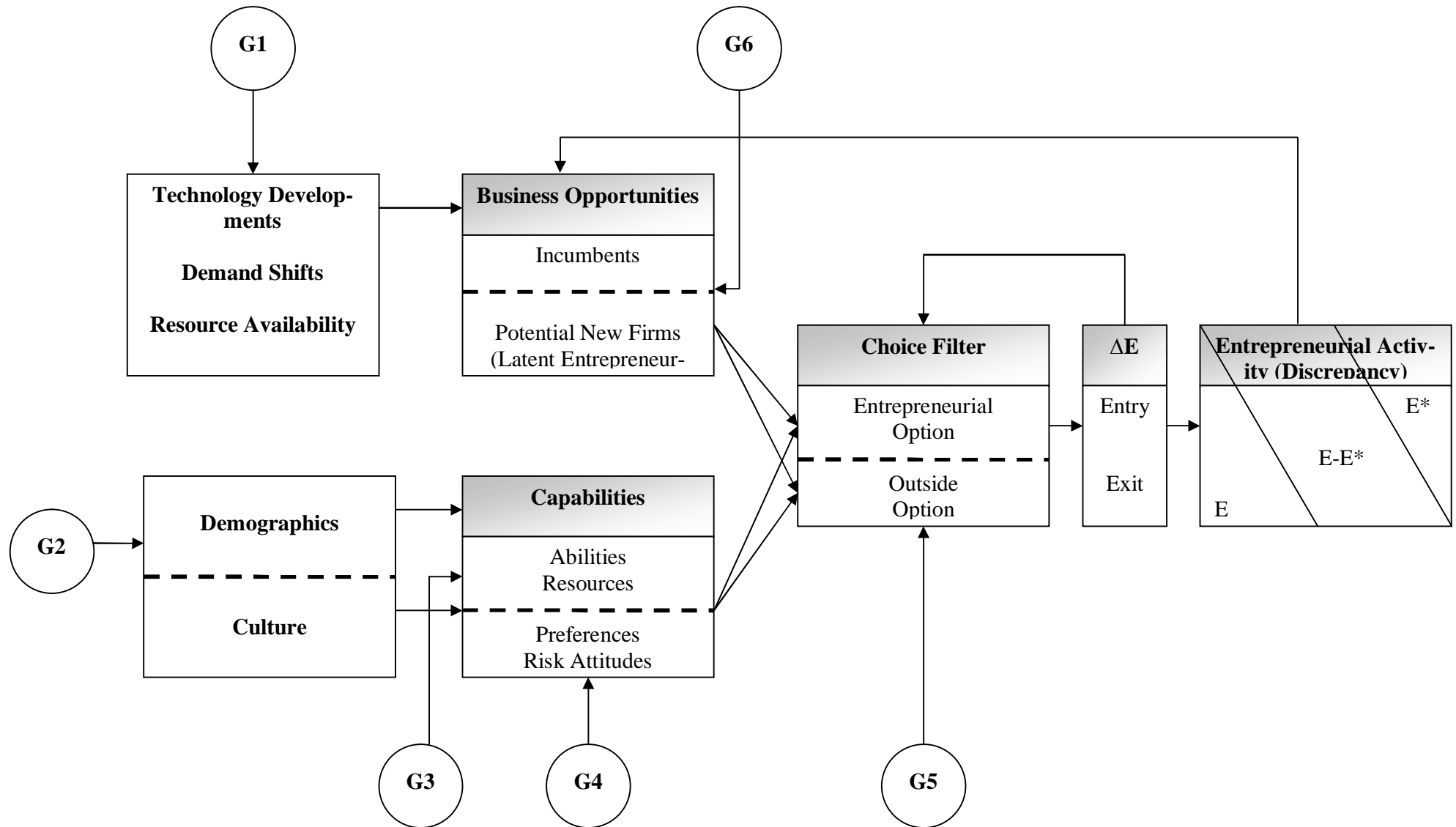
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**Figure 2: Entrepreneurship Policy Framework including six channels of government intervention**  
source: Audretsch, Grilo and Thurik (2007)