
1 Explaining entrepreneurship and the role of policy: a framework

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Introduction

This book has two cornerstones. The first is that entrepreneurship has emerged as a bona fide focus of public policy, particularly with respect to economic growth and employment creation. For example, the primary role played by entrepreneurship was identified by Romano Prodi during his tenure as President of the European Commission, 'Our lacunae in the field of entrepreneurship need to be taken seriously because there is mounting evidence that the key to economic growth and productivity improvements lies in the entrepreneurial capacity of an economy' (Prodi, 2002, p. 1).

The European Union does not have a monopoly on the concern about entrepreneurship. From the other side of the Atlantic, Mowery (2005, p. 40) observes:

During the 1990s, the era of the 'New Economy,' numerous observers (including some who less than 10 years earlier had written off the US economy as doomed to economic decline in the face of competition from such economic powerhouses as Japan) hailed the resurgent economy in the United States as an illustration of the power of high-technology entrepreneurship. The new firms that a decade earlier had been criticized by such authorities as the MIT Commission on Industrial Productivity (Dertouzos et al., 1989) for their failure to sustain competition against large non-U.S. firms were seen as important sources of economic dynamism and employment growth. Indeed, the transformation in U.S. economic performance between the 1980s and 1990s is only slightly less remarkable than the failure of most experts in academia, government, and industry, to predict it.

In fact, it is not just at the broad national level of the European Union or the United States that entrepreneurship has emerged as an important focus of public policy. The view that entrepreneurship is increasingly viewed to be the engine of economic growth and employment creation spans a broad spectrum of national but also regional and local contexts (Carree and Thurik, 2003). Public policy has looked to entrepreneurship to spawn economic growth and foster new jobs. Cities, regions, states and entire countries have turned to entrepreneurship to generate economic development.

The second cornerstone of this book is the observation that neither scholars nor policy makers are presently equipped to understand the public policy role for entrepreneurship. This is because the scholarly field of economics most concerned with economic growth and (un)employment, macroeconomics, has largely not considered the role that entrepreneurship plays in generating economic growth and employment. At the same time management – the academic discipline most squarely focused on entrepreneurship – has typically not considered implications for the broader economic context, and certainly not the link between that most micro of business phenomena – an individual starting a new business – and the broader macroeconomic performance. This seeming scholarly disconnection has stranded a generation of policy makers looking towards entrepreneurship to

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deliver economic prosperity and security without the intellectual foundation from which to understand, devise and implement policy.

The purpose of this volume is to provide such a foundation for entrepreneurship policy. In particular, six main questions are addressed:

1. What is entrepreneurship policy?
2. What is the economic rationale for (not) undertaking entrepreneurship policy?
3. Why has entrepreneurship policy become so important?
4. What are the main instruments of entrepreneurship policy?
5. Who implements entrepreneurship policy?
6. What is the impact of entrepreneurship policy and how should it be assessed?

The chapters that follow in this book provide some of the first serious, systematic analyses to address these questions. They do not, however, provide unequivocal, unanimous answers to these questions. This reflects the infancy of the field and early stages of a domain of inquiry where experiments predominate and where the importance of the questions asked prevails over the certainty of the proposed answers. Thus what emerges is a reflection of experienced scholars, serious researchers and dynamic policy makers grappling with a novel question of considerable policy relevance that few had posed just a few years earlier. Hence, this book is a prerequisite for students, scholars and practitioners in the incipient world of entrepreneurship policy.

An important conclusion of this book is that, in fact, entrepreneurship policy is not modernized policy promoting small and medium-sized enterprises (SMEs), or what is termed small business policy in the United States. Such SME or small business policy typically involves specific government agencies mandated with assisting specific types of enterprises (fewer than 500 employees in the case of the United States and fewer than 250 in the European Union).

By contrast this book argues that entrepreneurship policy is considerably more pervasive, embracing a broad spectrum of institutions, agencies and different constituency groups. This stems from the reflection of what Audretsch and Thurik (2001) identified as the shift away from the *managed economy* and towards the *entrepreneurial economy*. This shift has had a significant impact on a series of tradeoffs that range from those related to the competitiveness of large-scale production and economies of scale, to the role of diversity, finance and even geography. One implication arising from Audretsch and Thurik (2001) and confirmed in this book, is that the term 'entrepreneurship policy' is misleading in that it suggests a specific set of instruments are implemented by a restricted set of agencies affecting only a few enterprises or a particular industrial sector. Rather, it follows from Audretsch and Thurik (2001) that, just as the *managed economy* dictated a cohesive policy approach, the *entrepreneurial economy* also mandates a cohesive and pervasive policy approach that spans all facets of society, not just economic policy. The incremental approach would suggest that the rest of the economy – and certainly most aspects of public policy – remains unaltered, but that new instruments are introduced to spur new startups. The conclusions from this book build on the Audretsch and Thurik (2001) insight that what is at stake is not just a few entrepreneurial startup firms, but rather an entire economic approach. The entrepreneurial economy dictates a decidedly new public policy direction that not only spans many, if not most, institutions, but also leaves

virtually no aspect of the economy untouched. Thus entrepreneurship policy may actually be less about specific new instruments or agencies and more about how traditional policies and agencies need to be redirected from their traditional role in the managed economy to a very different orientation in the entrepreneurial economy.¹ Thus rather than focus on the addition of entrepreneurship policies to the arsenal of public policy instruments, the debate should perhaps focus instead on the changing role of public policy in the entrepreneurial economy. As Audretsch and Thurik (2001) point out, public policy towards finance, immigration, labor markets, retirement, education, family, wages and income distribution, international trade, health, and social security becomes dramatically different as the entrepreneurial economy replaces the managed economy.

The policy framework

Entrepreneurship is not a field known for its consensus. Scholars have proposed a plethora of definitions and measures (Hébert and Link, 1989; van Praag, 1999; Davidsson, 2004), and the origins of entrepreneurship span a wide spectrum of theories and explanations (Brock and Evans, 1989; Gavron et al., 1998; OECD, 1998; Carree et al., 2002; Parker, 2004; Grilo and Thurik, 2005). Entrepreneurship is a multidimensional concept, the definition of which depends largely on the focus of the research undertaken (Wennekers et al., 2002). However, entrepreneurship scholars appear to agree that the level of entrepreneurial activity varies systematically both across countries and over time (Rees and Shah, 1986; de Wit and van Winden, 1989; Blanchflower and Meyer, 1994; Blanchflower, 2000; Wennekers et al., 2002) and seem to have reached consensus about the 1970s and the 1980s being a turning point in the reversal of a long-term downward trend in entrepreneurship rates (Blau, 1987; Acs and Audretsch, 1993; Acs et al., 1999; Carree and Thurik, 2000; Carree et al., 2002; van Stel, 2005).

Comparing the level of entrepreneurship across nations is difficult for several reasons. The lack of a universally agreed set of indicators (OECD, 1998) and of a generally accepted definition of entrepreneurship makes measurement and comparison of the level of entrepreneurship for different time periods and countries a challenging exercise. One can take a 'static' or a 'dynamic' perspective (Wennekers, 1997; Wennekers and Thurik, 1999). The self-employment or business ownership rate is an important 'static' indicator of the level of entrepreneurship² as is the number of small and medium-sized enterprises in a country. The 'dynamic' perspective focuses on nascent and startup activity,³ as well as on the net entry rate and the turbulence rate (measuring firm entry and exit).

The multidimensional aspects of entrepreneurship include both stock and flow variables (the 'static' and the 'dynamic' aspect) and should distinguish between more qualitative aspects ('mom and pop' entry, high growth ventures, cutting-edge technological firms, etc.). The goals justifying policy intervention (from poverty eradication in developing countries to comparative advantage creation and technological frontier advances in developed countries) are crucial in defining the most relevant dimensions of the variable here summarily called 'entrepreneurship'.

One of the reasons policy makers and scholars have had such little guidance in understanding why entrepreneurship varies both temporally and geographically is that it is inherently an interdisciplinary subject spanning a broad range of fields, including management, finance, psychology, sociology, economics, political science and geography. The interdisciplinary nature of entrepreneurship research reflects a phenomenon that crosses

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the boundaries of multiple units of observation and analysis, such as the individual, groups, enterprises, cultures, geographic locations, industries, countries, and particular episodes of time. While each particular discipline may be well suited to analyze any particular analytical unit of observation, no discipline is equipped to analyze them all.

In this introductory chapter we present a framework of the determinants of entrepreneurship that attempts to integrate in an orderly way the different strands from the relevant fields of inquiry.

The Framework, inspired by the earlier works of Verheul et al. (2002) and Wennekers et al. (2002), 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).⁴ The Framework integrates 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 Framework also creates insight into the role of government policy by identifying the channels of intervention and policy instruments that will shift either the demand or the supply side (curves) (see Figure 1.1).

The determinants of entrepreneurship can be examined from three distinctive levels of analysis – the micro, industry and macro levels of entrepreneurship. The objects of study tied to these levels of analysis are the individual entrepreneur or business, sectors of industry and the national economy, respectively. Studies at the micro level focus on the individuals' decision-making processes and their motives for becoming self-employed. Research into the decisions of individuals to become either wage-earners or self-employed focuses primarily on personal factors, such as psychological traits, formal education and other skills, financial assets, family background and previous work experience. Studies at the industry level of entrepreneurship often focus on market-specific determinants of entrepreneurship, such as profit opportunities and opportunities for entry and exit. The macro perspective focuses on a range of environmental factors, such as technological, economic and cultural variables as well as government regulation. In short, the Framework demonstrates that there are many ways in which the level of entrepreneurship can be influenced.

The business opportunities created by technology developments and demand shifts given resource availability, can *a priori* be exploited either through existing firms⁵ or through the creation of new ventures by new entrepreneurs entering the market. 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, and the product and labor market regulatory environment are examples of interventions influencing this partitioning of the exploitation of opportunities between incumbent firms and potential new entrants. In Figure 1.1, the 'Business Opportunities' box and its dotted line schematically represent this.

For opportunities to materialize into market entry, potential entrepreneurs have to recognize they exist, 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).⁶ The 'Capabilities' box in Figure 1.1

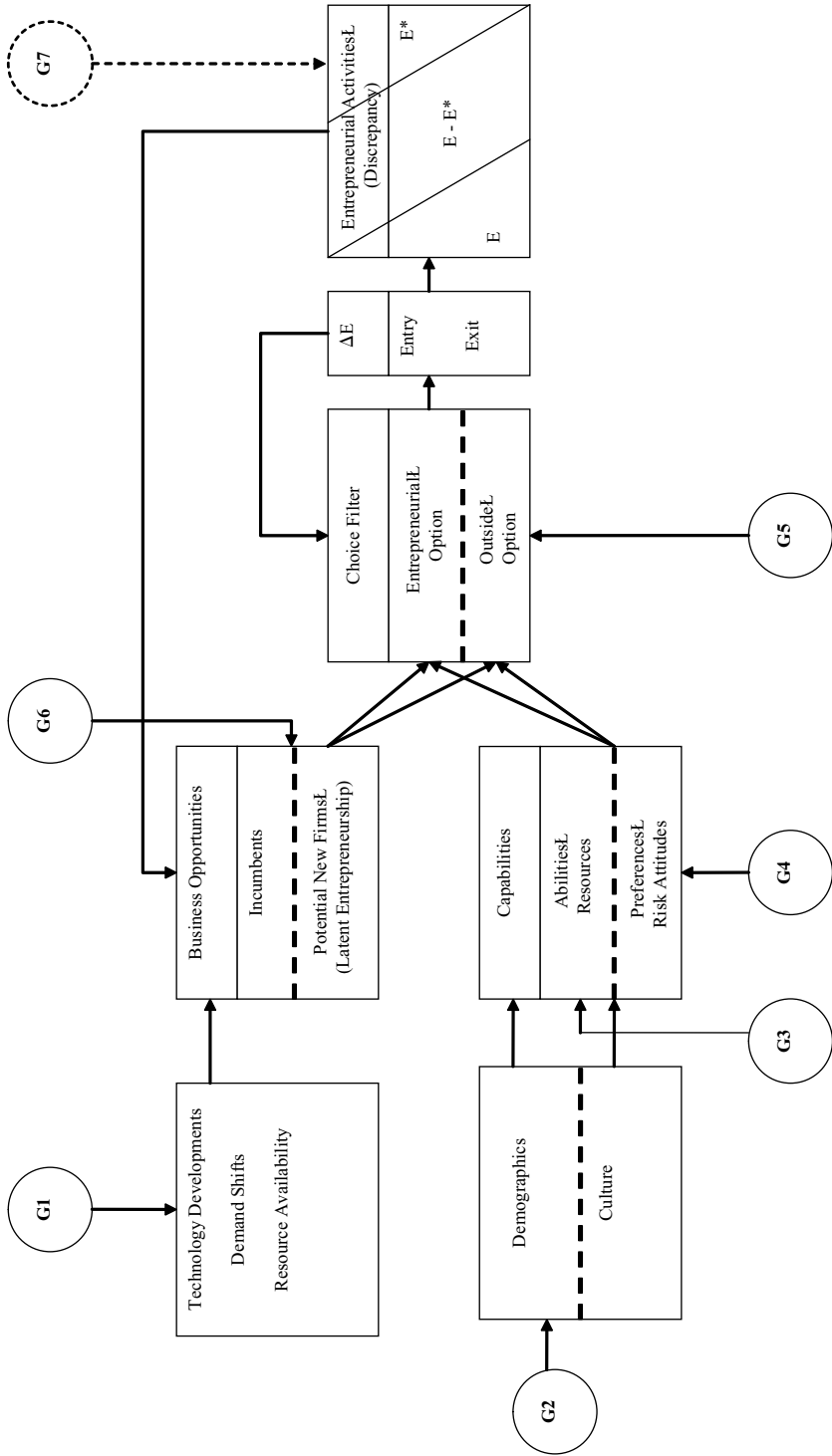


Figure 1.1 Policy framework

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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 'Choice Filter' box stands for the individual decision process that potential entrepreneurs go through when confronted with the choice between the entrepreneurial venture suggested by the opportunities (that best matches their capabilities) and the best 'outside' option open to them. 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 be driven by individual preferences and in particular by risk attitudes.⁷ This is represented by the arrows linking 'Capabilities' to 'Choice Filter'. Figure 1.1 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 (outside options).

Broadly speaking, the 'Business Opportunities' box can be thought of as the demand for entrepreneurship perspective (which is in the end a derived demand resulting from developments in the services and product markets); while the 'Capabilities' box relates to the supply side of entrepreneurship.⁸ Feeding into the 'Capabilities' box we show factors that are not individual-specific but rather aggregate characteristics of the country or society to which the individual belongs. These factors, while having a quantitative demographic dimension as well as a qualitative cultural one, are nevertheless also important in shaping the supply side of entrepreneurship.

The occupational choices made at the individual level materialize as entry and exit rates of entrepreneurship at the aggregate level. Hence, there is an arrow from the 'Choice Filter' box to the ' ΔE ' box (Entry and Exit). People have various employment alternatives to evaluate. Employed people can trade in their wage jobs (or unemployment) for self-employment; they can remain in the type of employment they are currently in, or they can exit from self-employment – either voluntarily or involuntarily. These occupational decisions determine the actual level of entrepreneurship, E , in the 'Entrepreneurial Activities (Discrepancy)' box. We assume that there is a feedback effect where entry and exit impact on the occupational choice made in the 'Choice Filter'. According to this 'demonstration effect' the dynamics of entry and exit influence the (perceived) attractiveness of self-employment for individuals. 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 Activities (Discrepancy)' box. There are different views on the factors determining this 'equilibrium' rate (Lucas, 1978; de Wit and van Winden, 1991). Carree et al. (2002) present theoretical and empirical evidence of a long-term relationship between the stage of economic development and the 'equilibrium' level of business ownership,⁹ also suggesting that countries where the business ownership rate does not equal the 'equilibrium' rate suffer from a lower rate of macroeconomic growth.¹⁰ In this respect the 'equilibrium' level can also be interpreted as an 'optimal' level.

Many forces may cause the actual number of entrepreneurs to differ from the long-term 'equilibrium' rate (Carree et al., 2002). This discrepancy, $E - E^*$ in the 'Entrepreneurial Activities (Discrepancy)' box, may stem from cultural forces and institutional settings, such as the regulation of entry, incentive structures and the functioning of the capital market (Davis and Henrekson, 1999; Henrekson and Johansson, 1999). The 'discrepancy' can be restored either through market forces or government intervention. The restoring capacity of the market works through (the valuation of) the number and type of business opportunities. Therefore, we have introduced a feedback loop from the 'Entrepreneurial Activities (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. For instance, in the late 1970s and the early 1980s the structurally low number of businesses is likely to have contributed to a high level of unemployment (Carree et al., 2002). 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).¹¹ Moreover, when the number of business owners exceeds the 'equilibrium' rate this is assumed to lead to diminishing profitability, because of increased competition, resulting in higher exit or failure rates and lower entry rates.

Besides the discrepancy between actual and long-term 'equilibrium' entrepreneurship, which can conceivably be bridged through the dynamics set in motion by market forces as described above, one can also take a more normative stance and discuss the concept of E^* from the perspective of the policy-making government. In other words, E^* can also be viewed as the (government)-perceived 'optimal' or target entrepreneurship, the level of which depends on the social choice function of the government, on its perception of the 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 will be willing to intervene in the economy and through which channels the intervention is thought to be most successful. These elements shaping the government-perceived 'optimal' or target entrepreneurship are represented in Figure 1.1 by the dashed circle labeled 'G7'.

The government can try to link the actual and 'equilibrium' rate of entrepreneurship through intervention.¹² Depending on the nature of the (assumed) discrepancy, it can try to intervene using policies that foster or restrict entrepreneurship. Different perspectives exist on the role of the government in the economic process. Austrian and Chicago School theories consider government intervention in the national economy harmful and disturbing, whereas 'antitrust' schools of thought argue that the government has an important role in giving direction to the economic process; that is, addressing market failure. Implicit in the different strands of thought is the argument that government intervention is responsible for either corroding or restoring the discrepancy between actual and long-term 'equilibrium' entrepreneurship. The channels through which policy intervention may occur are dealt with below but first we discuss the economic rationale of intervention.

The economic rationale of public intervention

Even if entrepreneurship is conceivably linked to enhanced economic performance this is no automatic economic justification for public policy intervention. The economic rationale for public intervention relies on the existence of distortions and market failures.¹³ In

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particular, the presence of externalities is an important element leading to market failures in the context of entrepreneurship.

The incipient entrepreneurial culture in European societies has often been identified as one of the reasons for the gap in Europe's entrepreneurial activity relative to the US (Grilo and Irigoyen, 2006; Freytag and Thurik, 2007; Thurik, 2007). The under-development of Europe's entrepreneurial culture has multiple manifestations ranging from the so-called stigma of failure to people's low awareness of entrepreneurship as a career option. Education policy can play a role in changing young people's mindsets and skills by making them more aware and prepared for an entrepreneurial career. Given the alleged externalities associated with education, this in an area where public intervention can be defended as welfare enhancing.¹⁴

The concept of a 'level playing field' for businesses addresses a possible source of distortions in the treatment of different types of enterprises (according to their size, their sector or their origin). The establishment of a 'level playing field' is therefore an aim of enterprise policy over and above entrepreneurship itself. Taxation rules, labor and product market regulations as well as administrative burdens fall within these parameters.

Access to finance is an aspect where economic theory has identified a strong potential for market failures; the presence of these market failures has been confirmed by empirical work. Because the market for credit is particularly vulnerable to information asymmetries, situations of credit rationing may emerge when these asymmetries are too strong.¹⁵ Because the amount of information about a firm and the cost of obtaining it is not neutral to the firm's size it follows that small and young firms are more exposed to information asymmetries and therefore to credit rationing.

For the US, there is empirical evidence that liquidity constraints are more binding as firm size decreases (Fazzari et al., 1988). This type of evidence has also been found for the UK and other European countries. The case of Germany appears to be different and some authors believe that the bank-based financial system together with the banks' representation on firms' supervisory boards prevents liquidity constraints from being significant.¹⁶ The incipient arrival of high-technology firms in emerging industries in Germany could be attributed to this very system of financing.

Other compelling cases for public intervention in the field of entrepreneurship stem from potential market failures resulting from the existence of three types of externalities: network externalities, knowledge externalities and learning externalities.

Network externalities result from the value of an individual's or a firm's capabilities being conditional on the geographic proximity of complementary firms and individuals. This makes the value of an entrepreneurial firm greater in the (local) presence of other entrepreneurial firms, either because of the existence of a pool of specialized workers or suppliers, or because of increased potential for informational, technological and knowledge spillovers.¹⁷

Knowledge and the new ideas that it brings about has, at least partially, the nature of a public good. Because of these public good characteristics, private provision will be sub-optimal, opening the case for public intervention. This issue is in part related to intellectual property rights since the non-exclusivity of property,¹⁸ and therefore the non-appropriability of research outcomes, is exacerbated in cases where rights to exploit or commercialize new ideas are not properly assigned.¹⁹

For firms conducting early-stage research this externality is of exceptional importance and often compounds with market distortions in the credit market, strengthening the rationale for public policies in this area. This theory-driven reasoning is backed by empirical evidence on the higher divergence between social and private research and development (R&D) returns for early-stage research projects.²⁰

Finally a subtler source of externalities is the learning effect on third parties resulting from the activity of other firms, even if they fail. Ideas and projects created by failed firms often become integral parts of successful products and projects in other firms. This externality, from which other successful firms benefit, involves no counterpart compensation for the failed firm who can only appropriate the returns to its investment if it succeeds. This effect, together with the positive demonstration effects on potential entrepreneurs, leads to a level of entrepreneurial activity below the optimum (E^*).

Clearly, the increasing shift in the comparative advantages of developed, high labor cost economies towards knowledge-based activities has made these sources of market failure a pervasive phenomenon, creating a compelling argument in favor of policies in areas such as venture capital markets, knowledge commercialization, R&D and skill-upgrading efforts, and clustering.

Besides these dedicated policy areas, other horizontal policy domains have also been identified by the European Commission as targets for action in order to improve the business environment and the attractiveness of investing and working in the European Union. The relaunch of the Lisbon strategy by the European Union in 2005 under the Partnership for Growth and Jobs clearly recognizes the importance of private initiative in creating jobs and spurring growth, while at the same time acknowledging the role of governments in setting up the right framework conditions to free investors and workers from unnecessary constraints and to allow them to strive, and by doing so, to generate the jobs and growth required to improve Europe's standards of living.²¹

Channels of public intervention

In our framework of entrepreneurship determinants, policy intervention channels are defined for each of the boxes.

'Channel 1' government intervention, as represented by arrow 'G1' in Figure 1.1, involves the demand side of entrepreneurship. This type of intervention impacts on the type, number and accessibility of entrepreneurial opportunities. A distinction can be made between demand side policies creating room for entrepreneurship and policies affecting the accessibility of markets. Policies stimulating technological developments and income policy belong to the first category of policies, whereas competition policy and establishment legislation pertain to the latter category of policies. The latter type of intervention enables entrepreneurs to make use of the available room and is dealt with under 'Channel 6'. Technological advancements create opportunities for entrepreneurial 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 through higher wealth or income disparity, inducing demand for tailor-made products and services and thereby stimulating demand for entrepreneurship. 'Channel 2' government intervention, as represented by arrow 'G2', is intervention affecting the number of potential and future entrepreneurs at the aggregate (population) level, or the 'supply' side. Policies that pertain to 'type 2' intervention

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include immigration policy and 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 3' government intervention, as represented by arrow 'G3', impacts on the abilities and resources of potential entrepreneurs. Government policy can overcome finance and knowledge gaps through increasing the availability of 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 knowledge base of (potential) entrepreneurs, consisting of both skills and knowledge, can be influenced through the direct provision of relevant 'business' information (i.e. advice and counseling) or through the education system. However, immutable characteristics, such as learning capacity and personality traits, are difficult to develop through education and training.²² 'Type 3' policies can be typified as input-related policies, since they refer to both material factors, such as financial capital, and immaterial factors, such as knowledge inputs in the entrepreneurial process.

'Channel 4' government intervention, as represented by arrow 'G4', works through the preferences of individuals toward becoming an entrepreneur. Preferences of people, as expressed through values and attitudes, are developed during upbringing. These preferences include their evaluation of risks. Because preferences are, to a large extent, determined by cultural background, they are difficult to influence or modify (OECD, 2000). The government can try to influence individual preferences by fostering an entrepreneurial culture. For example, entrepreneurial values and attitudes can be shaped by introducing entrepreneurial elements in the education system and by paying attention to entrepreneurship in the media. 'Channel 4' policies are characterized by the assumed broadness of the concept of government policy, including the education system, and overlap, to some extent, with culture.

'Channel 5' government intervention, as represented by arrow 'G5', is directed at the decision-making process of individuals who are 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 of starting or continuing a business. Bankruptcy policy can also influence the risk-reward profile. For example, when the legal consequences of bankruptcy are severe, this may discourage people from self-employment.

'Channel 6' government intervention, as represented by arrow 'G6', involves intervention on the demand side of entrepreneurship influencing the accessibility of markets. 'Channel 1' policies influence the size of the markets. Competition policy improves the accessibility of markets, for instance through reducing the market power of large firms and lowering barriers to entry for small businesses. Through establishment and

bankruptcy legislation the government can also influence the accessibility of markets. When establishment requirements and bankruptcy legislation are strict and opaque (potential) entrepreneurs can be discouraged from filling in the market gaps and opportunities. Protection of property rights and the regulatory environment of product and labor markets are further examples.

Next to the six channels of public intervention discussed above we introduce a seventh element. This concerns the economic or political economy arguments that shape the determination of the level of E^* . Schematically, the dashed circle at the top right of Figure 1.1 represents some of the sources of the possible discrepancy between the actual and the 'optimal' or 'equilibrium' level of entrepreneurship that have been discussed in the section dealing with the economic rationale for public intervention. We refer to this element as channel 'G7'.

The chapters of the present book and the channels of government intervention

While all chapters in this book are separately readable and practically all contain a mix of descriptions, justifications and consequences of entrepreneurship policy, some classification can be made. Chapters 2 to 5 (Auwerswald, Audretsch and Beckmann, Parker, and Henrekson and Roine) emphasize the rationale of entrepreneurship policy, Chapters 6 to 9 (Stevenson and Lundström, Link, Hoffmann, and Wessner) deal with its role, and Chapters 10 to 12 (Siegel, Hülsbeck and Lehmann, and Green and Storey) provide specific examples.

In Chapter 2 Auwerswald ('The simple economics of technology entrepreneurship: market failure reconsidered') concentrates on the specific set of innovative entrepreneurs and discusses the facts and justifications (normative and positive approach) for supporting early stage technology development. It argues that for these ventures, informational asymmetries at the heart of incomplete contracting are far more important than incomplete appropriability, although this latter category of market failure – leading to R&D spillovers – is more often invoked to justify policy intervention in technology/R&D support. The chapter challenges the claim that, presently, there is enough 'private' funding of early stage technology development for public support not to be needed. The author proposes a shift from using the market failure criterion to justify policy action to the more pragmatic 'additionality' criterion: does the proposed policy action result in private decisions that otherwise would not have been taken, and do these create social benefits that cover the costs incurred (including deadweight losses resulting from revenue gathering)?

The implementation of entrepreneurship policies as a new phenomenon since the 1990s is described by in Chapter 3 Audretsch and Beckmann ('From small business to entrepreneurship policy'). The objective of these policies is to foster economic growth and job creation by stimulating new business startups in particular, and the development of an entrepreneurial economy in general. Looking at previously implemented policy strategies like small business policy, for example, one can see a fundamental shift in economic policy with regard to policy goals, instruments and implementation strategies. The chapter analyzes how and why public policy has turned towards entrepreneurship as a mechanism for generating economic growth and employment. First, differences between previous economic growth strategies and the new entrepreneurship policies are worked out, followed by an analysis of the rationale behind the different economic policies. As there are a great

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variety of entrepreneurship policies implemented, the chapter provides insights into different entrepreneurship policy strategies using the US and Germany as examples. The chapter concludes that the choice of entrepreneurship policy instruments is determined by context.

In 'Policymakers beware!' (Chapter 4) Parker makes a passionate case against financial support for new and small businesses, using provocative arguments. In particular, he warns against the negative effects of policies that do not anticipate the perverse incentives they create and that are rendered ineffective by the response of private agents. He argues that there is too much entrepreneurship/entry/investment and this should be discouraged be it through taxation of entrepreneurial revenue or of resource cost (using loan/interest taxation to increase capital cost).

In Chapter 5 Henrekson and Roine ('Promoting entrepreneurship in the welfare state') examine how the supply of entrepreneurship and its distribution across activities is affected by the typical tax and welfare arrangements that characterize the mature welfare state. Using Sweden as an illustration, they argue that merely complaining about the negative effects of high taxation and large public programs is insufficient to illustrate their impact since there are positive effects as well. Moreover, welfare environments appear to create particular incentives, directing entrepreneurial activities but curtailing its supply. They conclude that there is room for a mature welfare state to reform itself away from the hostility towards entrepreneurship.

In 'Dressing the emperor: the fabric of entrepreneurship policy' (Chapter 6) Stevenson and Lundström provide insights into the construction of entrepreneurship policy based on the experiences and actual policy practices of national level government in 13 economies. They discuss the broad policy challenges it seeks to address, present a framework of entrepreneurship policy measures, describe their typology of entrepreneurship policy contrasting the different dimensions of each type, introduce a process for assessing the comprehensiveness of a government's entrepreneurship policy, and identify how the particular configuration and development of entrepreneurship policy reflects the idiosyncratic economic, social, political and cultural contexts of specific countries.

In Chapter 7 Link ('Public policy and entrepreneurship') discusses four areas where public policies of the US provide resources that extend opportunities for perception and action related to innovative behavior. The areas are tax incentives aimed at innovation and R&D, direct support of innovation and R&D, collaborative research arrangements reducing the cost of being perceptive, and infrastructure technologies reducing market transaction costs. US public policies related to these four areas can be characterized under the public-private partnership policy rubric.

In his creative and useful 'A rough guide to entrepreneurship policy' (Chapter 8) Hoffmann suggests a broad and encompassing roadmap to entrepreneurship policy. His chapter compares the various ways in which entrepreneurship policy is defined and measured, defines the business environment for entrepreneurship, and provides an empirical link between specific entrepreneurship measures and entrepreneurship policy. The roadmap provided by Hoffman should serve as a guide to policy formulation spanning a broad spectrum of policy makers.

In Chapter 9 Wessner ('Government programs to encourage innovation by start-ups and SMEs: the role of US innovation awards') reminds us that success in innovation has helped the US to become the world's leading economy. It faces new challenges as the

innovative edge has shifted from the large to the small business sector. This has consequences for the market of early-stage financing where a funding gap plays the role of the 'valley of death'. Examples of two complementary US business support programs are described: the Small Business Innovation Research program (SBIR) and the Advanced Technology Program (ATP). SBIR is a public-private partnership designed to draw on the inventiveness of small high-technology firms through competitive innovation awards. ATP is also designed to help bring new technologies to the market, but has a focus on high-risk, enabling and innovative civilian technologies.

In 'Quantitative and qualitative studies of university technology transfer: synthesis and policy recommendations' (Chapter 10) Siegel synthesizes a rapidly growing literature to draw out what has been learned about entrepreneurship policy facilitating the transfer of university technology. He provides a coherent framework for analyzing and understanding university technology transfer policy. The framework starts with the licensing of university technology and then considers university spin-offs, before focusing on lessons that can be drawn from entrepreneurship policy focusing on the transfer of university technology.

The purpose of the contribution of Hülsbeck and Lehmann ('Entrepreneurship policy in Bavaria: between laptop and lederhosen') in Chapter 11 is to show that Bavarian policy makers used the (dis)advantages of the past when formulating a new entrepreneurship policy. At the heart of their endeavors lay the combination of preserving traditional roots (lederhosen) and introducing tomorrow's products (laptop). They zoom in on the spillover effects of the Munich universities and conclude that the use of existing, and hence local, resources should be promoted even in the face of the uncertainties of non-existent and sometimes global products.

The contribution of Green and Storey called 'Issues in evaluation: the case of Shell Livewire' (Chapter 12) discusses some issues in evaluating enterprise programs. It deals with questions of whether programs are well managed, and of understanding the objectives of evaluation and the problems arising from the fact that an evaluation typically takes place at a particular point in the program's development. The chapter discusses methods to aid development of enterprise programs using as illustration an evaluation conducted on Shell Livewire, a large youth enterprise development program in the UK. This example illustrates the process of converting stated targets into identifiable measures despite the presence of unclear objectives. This example also illustrates the circular nature of an evaluation process, with the assessment findings feeding into the objectives of the organization and eventually helping to refocus the organization.

Finally, using the policy framework shown in Figure 1.1 we are able to provide an overview of the dimensions of entrepreneurship policy discussed in the respective chapters of our *Handbook of Research on Entrepreneurship Policy*. In Table 1.1 the chapters are characterized in terms of the seven policy channels. See Figure 1.1 for their specific roles as determinants of entrepreneurship.

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14 *Handbook of research on entrepreneurship policy*Table 1.1 *The 12 chapters and the seven channels of policy intervention, G1 to G7*

Chapter	G1	G2	G3	G4	G5	G6	G7
2. Auwerswald	X		X				X
3. Audretsch and Beckmann			X	X	X	X	
4. Parker		X		X	X	X	X
5. Henrekson and Roine	X				X	X	
6. Stevenson and Lundström	X	X	X	X		X	X
7. Link	X					X	
8. Hoffmann	X	X	X			X	X
9. Wessner	X		X			X	
10. Siegel	X		X			X	X
11. Hülsbeck and Lehmann	X		X			X	
12. Green and Storey		X	X	X			

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Notes

1. This is not denying that new innovative entrepreneurship policy avenues have been created by governments. See the contribution by Audretsch and Beckmann in Chapter 3 of this book.
2. The term 'self-employment' sometimes only refers to people who provide employment for themselves and not for others. Not only in the present introduction but often also in the remaining chapters of this book the terms business ownership and self-employment are used as equivalent to entrepreneurship.
3. The data of the Global Entrepreneurship Monitor (GEM) show that there are substantial differences in the *dynamics* of entrepreneurship across countries, with the developed Asian and Central European countries ranking lowest, followed by Europe. Substantially higher levels are found in the former British Empire Anglo countries (including the US), and Latin America and developing Asian countries rank still higher (Reynolds et al., 2002; Acs et al., 2005).
4. This distinction is sometimes referred to as that between push and pull factors (Vivarelli, 1991).
5. 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 behaviour is not the theme of the present book.
6. See Sarasvathy et al. (2003).
7. In the words of occupational choice literature, a potential entrepreneur chooses by comparing the expected utility from the two alternatives.
8. See Verheul et al. (2002) and Wennekers et al. (2002) for a more elaborate treatment of the demand and supply interpretation.
9. There is some evidence that this relationship is U-shaped. Carree et al. (2002) mention a 'Schumpeterian regime switch' as the cause of the recent reversal of the prolonged downward trend in the 'equilibrium' rate of entrepreneurship. Piore and Sabel (1984) use the term 'Industrial Divide' and Jensen (1993) refers to the 'Third Industrial Revolution'. Audretsch and Thurik (2001 and 2004) make a distinction between the 'managed economy' and the 'entrepreneurial economy'.
10. See also Audretsch et al. (2002) who introduce the term 'growth penalty'.
11. At the aggregate level (high) unemployment may also correlate with recession and declining entrepreneurial opportunities (Audretsch et al., 2005).
12. In order to adequately intervene in the national economy, it is important that the government is able and willing to perceive a deviation from the 'optimal' rate of entrepreneurship. Moreover, the government will

- have its own (economic or political economy) ideas about the target level of entrepreneurship and its importance in the economy.
13. Note however that even if such failures exist, it still needs to be discussed whether public intervention does not create further distortions when addressing the original ones.
 14. The European Commission has recently outlined a set of recommendations aimed at enhancing the role of education in creating a more entrepreneurial culture in European societies. See 'Implementing the Community Lisbon Programme: Fostering entrepreneurial mindsets through education and learning', COM(2006)0033. In the context of the Lisbon strategy and following the recommendations in the framework of the Charter for Small Enterprises, several EU member states have announced the introduction of elements of entrepreneurship training into school curricula.
 15. See for example Stiglitz and Weiss (1981) for a model of credit rationing.
 16. Contrary to other studies for Germany, Winker (1999) finds evidence that German firms are liquidity constrained and that the degree of these constraints is inversely related to size.
 17. It is argued that local proximity is essential for these knowledge spillovers to fully take place (Jaffe et al., 1993; Ogawa, 1997; Feldman and Audretsch, 1999) though other authors contend that knowledge externalities are so important and forceful that there is no compelling reason for a geographic boundary to limit the spatial extent of the spillover (Krugman, 1991).
 18. A public good displays both non-rivalry in consumption and non-exclusivity (meaning that, either due to technological or legal reasons, once the good is available it is so for all those who wish to use it). Public goods can be seen as an extreme case of externalities.
 19. In some cases the non-codifiable nature of knowledge makes it impossible to properly define property rights and therefore excludes a market solution for the production and allocation of new ideas.
 20. See Mansfield et al. (1977), Link and Scott (1997) and Martin and Scott (2000) for follow-up research.
 21. See 'Working together for growth and jobs: a new start for the Lisbon Strategy', COM(2005)24 and the 2005 Communication to the Spring European Council, 'Working together for growth and jobs – integrated guidelines for growth and jobs (2005–08)' at <http://europa.eu.int/growthandjobs/>.
 22. See van der Kuip and Verheul (2003).

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