Open access • Journal Article • DOI:10.1007/S10842-009-0052-7

The Meaning of Entrepreneurship: A Modular Concept — Source link

Michael Peneder

Institutions: Austrian Institute of Economic Research

Published on: 18 Mar 2009 - Journal of Industry, Competition and Trade (Springer US)

Topics: Entrepreneurship

Peneder, Michael

Working Paper

The Meaning of Entrepreneurship: A Modular Concept

WIFO Working Papers, No. 335

Provided in Cooperation with:
Austrian Institute of Economic Research (WIFO), Vienna

Suggested Citation: Peneder, Michael (2009) : The Meaning of Entrepreneurship: A Modular Concept, WIFO Working Papers, No. 335, Austrian Institute of Economic Research (WIFO), Vienna

This Version is available at:
http://hdl.handle.net/10419/128875

WIFO
ÖSTERREICHISCHES INSTITUT
FÜR WIRTSCHAFTSFORSCHUNG

WORKING PAPERS

The Meaning of Entrepreneurship: A Modular Concept

Michael Peneder

335/2009

The Meaning of Entrepreneurship: A Modular Concept

Michael Peneder

WIFO Working Papers, No. 335
March 2009

E-mail address: Michael.Peneder@wifo.ac.at
2009/059/W/0

The meaning of entrepreneurship: a modular concept

Michael Peneder*

ABSTRACT

Entrepreneurship has been characterised as one of the most intriguing but equally elusive concepts in economics. This critical review first surveys its major intellectual roots and then proposes a modular concept of entrepreneurship that preserves essential distinctions along its behavioural, functional, and occupational dimensions. It argues that the behavioural definition identifies the only attribute that is both comprehensive and unique to the nature of entrepreneurship, while the functional and occupational definitions add the specifity required for many analytical purposes. To validate the concept, the paper discusses the appropriate empirical units of observation and maps a general policy framework.

Key Words: Entrepreneurship, market co-ordination, innovation, technology diffusion, occupational choice.

JEL Codes: M13, B15, B25.

Forthcoming in the *Journal of Industry, Competition and Trade* 9 (2), 2009.

* Corresponding author:
Michael Peneder
Austrian Institute of
Economic Research (WIFO)
P.O. Box 91; A-1030 Vienna
Austria
Tel.: + 43-1-798 26 01 – 480
Fax.: + 43-1-798 93 86
E-mail: michael.peneder@wifo.ac.at

1. Introduction

Entrepreneurship has been correctly characterised as one of the most intriguing but equally elusive concepts in economics (Baumol, 1968). Part of the difficulty in pinning down its precise meaning stems from the sheer weight of the very fundamental functions it is held responsible for. If we start with a bold synthesis of the literature, it is responsible for no less than moving the economic system simultaneously closer to and away from equilibrium. Depending on what intellectual tradition we follow, entrepreneurship either enhances the allocative efficiency for given ends and means, or drives the dynamic performance of the system through the progressive creation of new products, processes or markets.

Another reason for the puzzling variety of concepts is the interdisciplinary nature of the topic, involving scholars from the fields of economics, business strategy, organisational behaviour, sociology and psychology, often further fragmented in competing strands and research traditions. For instance, scholars of business strategy and management typically apply a behavioural and process perspective, interested in how to act entrepreneurially. Conversely, economists primarily care about how the economic system works, and therefore characterise entrepreneurship by the particular functions it fulfills in order to enhance the operations of the overall system. Yet, when labour economists deal with entrepreneurship, they are specifically concerned with the occupational choice of either being a salaried employee or self-employed. Finally, sociologists and scholars of organisation studies investigate the social and organisational embeddedness of entrepreneurial behaviour, while psychologists add their expertise to explain how entrepreneurship relates to personal characteristics and individual cognitive processes within varying situational contexts.

Taking advantage of its opennes to such varied inputs, in recent decades entrepreneurship research has emerged as an independent branch of academic inquiry, being multidisciplinary but mostly associated with the management focus of business schools. In one of the earliest attempts for an independent and comprehensive intellectual basis, Casson (1982, p. 23) defines the entrepreneur as “someone who specialises in taking judgemental decisions about the coordination of scarce resources”, further explaining that judgemental decisions are those for which no obviously correct procedure exists in the sense of the routine application of a standard rule. In a similar vein, Hébert and Link (1989, p. 47) conclude that the “entrepreneur is someone who specializes in taking responsibility for and making judgemental decisions that affect the location, form, and the use of goods, resources, or institutions.” Casson et al. (2006) further emphasise that the sources of information are highly localized with different people in different places having different perceptions of a situation. Judgemental decisions thus depend on the identity of the entrepreneur and are potentially unique.

Still, the prevalent opinion is that the theoretical and empirical underpinnings of the discipline are either partial or too vague and complain about "the considerable confusion that exists in the way that people use the term entrepreneurship" (Ahmad and Seymour, 2008). Similarly, Shane and Venkataraman (2000: 217) critically observed that "entrepreneurship has become a broad label under which a hodgepodge of research is housed," while Davidsson (2003, p. 2) admits to an apparent "confusion, signs of identity crisis, or widespread frustration." Against this widespread sense of frustration, this paper applies a constructive approach, first reviewing many intellectual building-blocs from the literature and then proposing a novel modular concept that is based on the explicit distinction between the behavioural, occupational and functional dimensions of entrepreneurship. As the paper is going to argue, this relatively straightforward separation helps to illuminate several analytic puzzles and overcome much of the current confusion about the actual meaning of entrepreneurship.

To begin with the behavioural explanations, the one aspect that prevailed most is the opportunity-seeking nature of entrepreneurship. For example, we find that in the widely used textbook of Sahlman et al. (1999, p. 7), who define their management approach to entrepreneurship as "the pursuit of opportunity without regard to resources currently controlled." Venkataraman (1997, p. 120) states that "entrepreneurship as a scholarly field seeks to understand how opportunities to bring into existence 'future' goods and services are discovered, created, and exploited, by whom, and with what consequences." Finally, paraphrasing Robbins' (1935) popular definition of economics as the science of the relationship between ends and scarce means, Shane and Eckhardt (2003, p. 165) define entrepreneurial opportunities "as situations in which new goods, services, raw materials, markets and organizing methods can be introduced through the formation of new means, ends, or means-ends relationships."

With its emphasis on the 'individual-opportunity nexus' entrepreneurship research appears to arrive at a unique and independent foundation of its discipline. As the paper is going to argue, its perspective is more comprehensive than any of the individual concepts that have emerged from the economics literature. Its universality, however, also comes at a cost, as many authors remain vague about the precise economic function they have in mind. To give an example, some authors lay particular emphasis upon the Schumpeterian idea of innovative entrepreneurship (e.g. Venkataraman, 1997; Ahmad and Seymour, 2008), while others stress Kirzner's process of entrepreneurial discovery (e.g. Davidsson, 2003). Ultimately, the proposed definitions typically embrace both in a way that makes the two approaches indistinguishable. The conceptual differences, however, are real and elementary. Lacking the means to discriminate them implies a loss in terms of analytical precision.

How can we reconcile the aim of generality with that of analytic specifity? One popular option is to pile up characteristic attributes that take account of the manyfold dimensions of the phenomenon. But

following that path easily leads into a 'complexity trap'. Despite the growing enumeration of important characteristics, the attempted definitions can never become fully comprehensive. At the same time they increasingly loose their discriminatory power as the distinctions between analytically useful categories get blurred.

This paper pursues the alternative option of adding analytic structure by means of a deliberate separation of different dimensions of the phenomenon. The focus is on the general economics literature, which is primarily concerned with the functional dimension, explaining the different mechanisms of how entrepreneurship enhances the market process and economic development. In addition, the paper assesses to what degree the economists' concepts are consistent with the behavioural and occupational definitions, trying to identify the proper place that the different functional theories may occupy within an emerging general paradigm of entrepreneurship. In contrast to the frequent practice of synthesising the variety of ideas into another single, 'all-inclusive' definition, the modular approach respects the fundamental differences between concepts.

The paper is organised as follows. Section 2 offers a critical discussion of the major intellectual roots of the modern economic understanding of entrepreneurship. It gives evidence to an astounding variety of ideas and distills the major intellectual building blocks. Section 3 then proposes a modular concept that preserves essential distinctions along the behavioural, functional, and occupational dimensions of entrepreneurship. The modular approach helps to understand where the various concepts complement or overlap and what implicit assumptions they involve with respect to the other dimensions. Section 4 discusses empirical indicators and how they relate to the theoretical concepts. Section 5 summarises and briefly discusses the general policy framework.

2. The building blocks: a critical review of entrepreneurship theories

2.1 Merchant adventurers and undertakers

To begin with, one can dig very deep in the history of ideas. For example, Karayiannis (2003) reports how the Greek philosopher Xenophon described the proper activities of free citizens, which are not only head of the household but also proprietor of a small family business that might comprise a few labourers. Although he mainly accounted for managerial duties, he also recognised the adventurous and opportunity seeking nature of the oversee merchants[1].

[1] "So deep is their love of corn that on receiving reports that it is abundant anywhere, merchants will voyage in quest of it: they will cross the Aegean, the Euxine, the Sicilian sea; and when they have got as much as possible, they carry it over the sea, and they actually stow it in the very ship in which they sail themselves. And when they want money, they don't throw the corn away anywhere at haphazard, but they carry it to the place where they hear that corn is most valued and the people prize it the most highly, and deliver it to them there" (Oeconomicus, xx.27-28; quotation from Karayiannis, 2003, p. 558).

Making a long leap in history, in the early 18th century Richard Cantillon coined the term 'entreprendre', which indicated the general undertaking of a business. Cantillon envisaged agents who contract with suppliers and labour at known cost in order to produce goods that later could be sold at uncertain prices. He already considered the profit motive for engaging in exchange, uncertainty, and cost reductions due to the application of new production techniques. However, when the concept was later popularised in the influential work of Jean-Baptiste Say, entrepreneurship was largely reduced to the role of a special kind of labour which is responsible for combining the factors of production, i.e. to its managerial function.[2]

Whereas economists of the French school distinguished between the role of the entrepreneur and the capitalist, both were generally conflated by Adam Smith and the British classical economists, who regarded the reward of risking capital as the sole source of profit. Thus, the "classical system rested on foundations that subtly drew attention away from the role of the entrepreneur" (Ricketts, 2006, p. 39). Also Marshall locates opportunity seeking behaviour primarily among the capitalists, who decide where to invest. Influenced by the German economists of the mid 19th century, who continued to emphasise the management role of entrepreneurs,[3] he characterises "business men" as a "specialised body of employers", who "bring together the capital and the labour required for the work; they arrange or 'engineer' its general plan, and superintend its minor details" (Marshall 1890/1920, p. 244). Reminiscent of Say, employers thus bear the responsibility of specialised managers, who themselves act much like employees of the capitalist class. Consistent with the neoclassical theory of production, they optimise the allocation of resources and maximise overall efficiency: "[T]he alert business man strives so to modify his arrangements as to obtain better results with a given expenditure, or equal results with a less expenditure. In other words, he ceaselessly applies the principle of substitution, with the purpose of increasing his profits" (Marshall, 1890/1920, p. 295). Similarly, the "alert business man" determines the optimal level of production, as "he pushes the investment of capital in his business in each several direction until what appears in his judgement to be the outer limit, or margin, of profitableness is reached" (p. 296 and 298).[4]

Among later writers, Leibenstein (1968) made the most explicit attempt to link business management with entrepreneurship. He points at the frequently incomplete knowledge about parts of the production function and stresses persistent slack as a source of entrepreneurial opportunity. In his words,

[2] For more elaborate discussions, see Hébert and Link (1982), van Praag (1999), Grebel, Pyka and Hanusch (2004), or Ricketts (2006).

[3] Streissler (1989) particularly points at the influence of Wilhelm Roscher and Karl Heinrich Rau.

[4] By virtue of the outstanding comprehensiveness of his work, Marshall escapes any easy categorization. As Schumpeter (1954, p. 840) observed, "more than any other economist ... Marshall pointed beyond himself" and "sensed the intimate organic necessities of economic life" (ibid. p. 836). For example, in his chapter on Business Management he briefly mentions also the tasks of processing information, innovation, and bearing risks – all of them important aspects we will turn to in the subsequent sections of this review. For a detailed discussion see Karayiannis (2009).

entrepreneurs "must in some way make up the deficiency" by the means of "gap-filling" and "input-completing" (ibid. p. 73-74). However, economists generally refrained from conflating entrepreneurship and pure managerial functions, such as monitoring or superintendence. As argued, for instance by William Baumol (1968), efficiency increases within the limits of a given technology of the firm should better belong to the domain of management.

2.2 The risk bearing function

Beginning with Cantillon, a number of authors have stressed uncertainty and the risk bearing function as a defining characteristic of entrepreneurial activity. For instance, in the first half of the 19th century J.H. von Thünen characterised entrepreneurial profits as the residual income after interest payments, insurance against business losses, and wages of management, i.e. as a return to uninsurable risk, effort and ingenuity.[5] Justifying profit and explaining its sources was also a major endeavor among American economists of the late 19th and early 20th century, who increasingly stressed the risk-bearing function of entrepreneurs.[6] Finally, it was Frank Knight (1921) who provided the most enduring argument. As he explains, entrepreneurs specialise in risk-bearing, because they feel confident about their decision-making ability under conditions of fundamental uncertainty.[7] The defining characteristic of a new start-up organisation is therefore the division of labour, "under which the confident and venturesome 'assume the risk' or 'insure' the doubtful and timid by guaranteeing to the latter a specified income in return for an assignment of the actual results" (ibid., p. 60-63).

Knight tries to explain the division of labour within the firm organisation and thus relates naturally to the question of occupational choice. Entrepreneurs are those who run a business as residual claimants to its returns (i.e. the owner-managers). They specialise to do so because of differential ability and confidence regarding both their risk-bearing function and their responsibility of supervising the employees. Thus, entrepreneurship is explained as a compound effect of what are essentially the capitalist and managerial functions of a typical owner-manager. But the problem is that in modern economies both functions are regularly carried out by different occupational groups, as we easily see from the historic development of limited liability and the separation of ownership (risk-bearing) and control (management) in most large corporations. Furthermore, people continuously assume risks of the 'unknowable' kind in manifold instances of (economic) life. To conclude, Knight's distinction

[5] See also Hans von Mangoldt (1855), who explained profits primarily as a rent for differential entrepreneurial ability. His influence was explicitly acknowledged, e.g. by Schumpeter (1954, p. 504).

[6] Karayiannis (2005) points in particular at F. Hawley and J. Haynes.

[7] Fundamental uncertainty means the "typical uninsurable (because unmeasurable and this because unclassifiable) business risk that relates to the exercise of judgement in the making of decisions by the business man." Among others, people differ in their "intellectual capacity to decide what should be done" as well as their "confidence in their judgement and powers and in disposition to act on their opinions" (Knight, 1921, p. 60-63).

between fundamental uncertainty and risk is important for understanding the nature of human action in general, and economic choices more specifically. However, the risk bearing function is not a unique attribute of entrepreneurs and therefore does not serve well as a defining characteristic.[8]

Only a few theoretical economists have directly applied Knight's concept of entrepreneurship. One example is Kihlstrom and Laffont (1979), who present a general equilibrium model of firm formation based on the occupational choice of people with less risk aversion to run their own business, and the others to become employees. The situation is different, however, for empirical analyses, where 'self-employment' is frequently applied as the appropriate empirical counterpart of entrepreneurship. One example is Evans and Jovanovic (1989), who test a model of occupational choice, confirming that imperfections in the capital market impose liquidity constraints on would-be entrepreneurs.[9] The findings generally underscore, that in practice independent entrepreneurs must use their own funds for a considerable part of their ventures and hence assume the risks associated with the capitalist function as well. This leads us to conclude that Knightian uncertainty is an important aspect to understand the actual operations of entrepreneurs as an occupational group, even though we won't use it as defining characteristic of entrepreneurship more generally.

2.3 Market coordination

The modern concept of entrepreneurial competition as an opportunity seeking discovery process is invariably linked with the Austrian school of economics[10]. Carl Menger (1871) still used the term 'Unternehmertätigkeit' in the traditional sense of the general undertaking of a business. Stressing the importance of uncertainty, he nevertheless rejected the idea, that risk bearing is a defining characteristic of the entrepreneurial function. Instead, Menger added his own emphasis on the entrepreneurial task of *processing information*. This was a radical departure from Cantillon and others, but proved to be a fruitful ground for his followers to develop a distinctive Austrian approach to the problems of market co-ordination and entrepreneurship.

Friedrich von Wieser still defined entrepreneurs as an occupational class of legal owner and managers of an enterprise, but introduced two themes that became constitutive for distinct strands of research (Streissler, 1988). The first is his emphasis on the informational function of market prices, which was

[8] See also business historian Richard S. Tedlow (2001, p. 87f): "Entrepreneurs are usually thought of as risk takers. They are said to take big risks for big rewards. In fact, most entrepreneurs embrace the rewards but try to avoid the risks. … Thus, the voyage of many a great entrepreneur is, among other things, the voyage away from risk, which can never be completely eliminated from a new venture, and toward certainty."

[9] Other examples for empirical investigations into the nexus of risk-taking and entrepreneurs as an occupational group are Van Praag and Van Ophem (1995), or Hartog, Ferrer-i-Carbonell and Jonker (2002).

[10] See also Ekelund and Hébert (1991), who report that in the 19th century the French economist Jules Dupuit was the first to recognise the entrepreneurial role of "discovering demand."

taken up and further developed by Mises and Hayek. Hayek (1945, 1978), in particular, explained how the competitive process stimulates the discovery of profit opportunities through the information revealed by movements in the price system. It is the entrepreneurial discovery of variation in prices that incites a business owner to increase supply where shortages of a particular commodity are most severe. The same entrepreneurial responsiveness to price signals causes continuous adjustments in the allocation of resources between competing uses. Hayek thus established our understanding of competiton as an entrepreneurial discovery process, which leads the many independent and largely dispersed market participants to adjust their plans in an equilibrating direction. Of course, Austrians argue that in the dynamic, fast moving market environment this equilibrium is never reached. Otherwise, the entrepreneurial function would cease to exist.

Kirzner (1997a,b) defined the modern Neo-Austrian synthesis of entrepreneurial competition, stressing the entrepreneurial alertness to hitherto unexploited profit opportunities. *Alertness* is an asserted behavioural mode, which rests on the differential ability to notice gainful opportunities without deliberate search (Endres and Woods, 2006). Opportunities arise through ignorance (i.e. earlier entrepreneurial errors) and "the continual change in tastes, resource availabilities, and known technological possibilities" (Kirzner 1997a, p. 72). The entrepreneurial response can be either of both: arbitrage in pure trading relationships or the adjustment of production to changes in input prices and/or technology. In both cases opportunities are already given and price signals in the market alert the entrepreneurs and trigger their activity. In short, the entrepreneurial pursuit and exploitation of profit opportunities *drives* the process of market coordination with the price signals on the market being its guideposts.

2.4 Endogenous innovaton

The intellectual seedbed of Carl Menger and the Austrian school proved influential for another concept of entrepreneurship, which relates to a second theme that Wieser introduced, i.e. his notion of the creative entrepreneur. Combining influences from both the Austrian School and the German historical tradition,[11] Schumpeter explains the nature of entrepreneurship by the recognition and assertion of opportunities through innovation, which includes "the introduction of new commodities" as well as "technological change in the production of commodities already in use, the opening up of

[11] Streissler (1994) provides a detailed account of the varied influences from both the Austrian and the German Schools on Schumpeter, among others pointing at Gottlieb Hufeland, who stressed the importance of entrepreneurs (in 1807); Karl Heinrich Rau, who emphasised the distinctive need for combining factors of production (in 1926); and A.F. Riedel, who elaborated on the task of innovation (in 1838). Balabkins (2003) points in particular at Albert E.F. Schäffle, who temporarily lived in Vienna and discussed innovation in the context of the protection of property rights (in 1867). Finally, Karayiannis (2005) mentions the influence of the US American J.B. Clark, who emphasised profits from cost-reducing innovations (in 1891).

new markets or of new sources of supply, Taylorization of work, improved handling of material, the setting up of new business organizations such as department stores – in short, any 'doing things differently' in the realm of economic life" (Schumpeter, 1939, p.84). In contrast to the exploitation of given opportunities that serve the mutual co-ordination of actors in the market place and thus the equilibration of supply and demand, Schumpeter thus defines entrepreneurship as the particular economic function responsible for introducing novelty to the system. He thereby relies firmly on the methodological individualism and subjectivism of the Austrian School, which is crucial to understand why innovations are not introduced to the market simultaneously by all firms.

At the heart of Schumpeter's behavioural assumptions about entrepreneurship, one can find an ability to imagine possible alternative states, but also the persistence to overcome manifold economic, psychological and social barriers.[12] These result from the objective uncertainty and higher exposure to risk, which surrounds any exploration of new grounds; the subjective difficulty involved in abandoning established modes in an effort to explore the unknown; and finally the external opposition or reluctance to adopt new social patterns. Entrepreneurial initiative therefore depends on the expectation of supernormal profits that compensate for the additional effort. Schumpeter defines these entrepreneurial profits as the additional rent attributable to the temporary monopoly position established through successful innovation. It is by this pecuniary incentive[13] that Schumpeter makes innovation endogenous to the economic system. Consequently, he must so persistently stress the relation between innovation and imperfect competition.

Schumpeter further deployed his concept of entrepreneurship into a general theory of economic development and fluctuation, resulting from the tensions caused by equilibrating tendencies in terms of adaptive response to disturbances in external conditions on the one hand, and the impact of creative response, which drives the economy away from equilibrium, on the other. In contrast to the prevalent focus on the accumulation of productive resources, entrepreneurship rose to be the "endogenous equilibrium-disturbing element as the centerpiece of economic development" (Grebel et al, 2004, p. 157)[14] with the entrepreneur being its principal "agent of change" (Audretsch, 1995).[15]

---

[12] For example, Witt (1998, 1999) stresses 'cognitive leadership' and van Praag (1999) a willingness to show deviating behaviour as important entrepreneurial characteristics.

[13] Beneath the level of pecuniary rewards, Schumpeter also gave three psychological explanations of what motivates entrepreneurial initiative: (i) power (or 'the will to found a private kingdom'), (ii) ambition (or 'the impulse to fight, to prove oneself superior to others'), and finally (iii) 'the joy of creating, of getting things done, or simply of exercising one's energy and ingenuity'.

[14] See also Grebel (2007).

[15] Note the following remark, where Marshall (1890/1920, p. 295) already linked entrepreneurship, innovation, and economic development: "The tendency to variation is a chief cause of progress; and the abler are the undertakers in any trade the greater will this tendency be." He also came very close to Schumpeter's distinction between 'creative' and 'adaptive'

Schumpeter consequently separated entrepreneurship from other economic functions, which may or may not be fulfilled by the same individual, e.g. the capitalist function (characterised by the "ownership of means"); management (the "administration of a going concern"), or the inventor (who "produces ideas"). Each of these functions constitutes an analytically separable source of income. Someone who is simultaneously an inventor, owner, and manager of a business draws on all of them.

There are numerous examples to demonstrate the enduring influence of Schumpeter's theory of entrepreneurship. To give the most recent one, Ahmad and Seymour (2008, p.14) put it at the core of the new OECD definition of entrepreneurship as the "enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes, or markets." Adding the emphasis that "clearly, not all businesses are entrepreneurial" (ibid. p. 13), the OECD made a deliberate choice with far reaching consequences. Taking sides for the Schumpeterian concept implies that the more general opportunity seeking behaviour of the Hayek-Kirzner type is cast outside. The current OECD definition is thus vulnerable to the critique, that entrepreneurs are alert to all kind of profit opportunities, not just those from innovation.

2.5 Technology diffusion

Among other approaches to entrepreneurship, maybe the most influential concept stems from the field of human capital theory. Its founder, Theodore Schultz (1975) highlights the function of enhancing efficiency through moves towards the current technology frontier, which is continuously upset by exogenous technological changes, for example from publicly funded R&D or innovations produced in other sectors of the economy. He therefore emphasises 'imitative' entrepreneurship, which is characterised by the adoption of exogenously changing technologies. Schultz postulates the 'ability to deal with disequilibria' as the distinguishing personal characteristic of entrepreneurs. Arguing that this ability can be enhanced by education and experience, he also invokes the particular responsibility for educational policies.

One may doubt whether Schultz really introduced a novel aspect to the theory of entrepreneurship. The first adoption of a new technology, which hitherto was not established in the market (but transferred e.g. from other sectors) qualifies as a Schumpeterian innovation that upsets equilibrium tendencies in the respective market. Conversely, the following imitative adoption of a technology that has already become state-of-the art in the market would be outside the Schumpeterian definition, but is still consistent with opportunity seeking behaviour as subsumed under Kirzner's notion of alert

---

behaviour, when writing that "we may divide employers and other undertakers into two classes, those who open out new and improved methods of business, and those who follow beaten tracks" (Marshall 1890/1920, p. 496).

discovery. Imitative technology adoption is explicitly mentioned in Kirzner's later synthesis. However, it is also true that the Neo-Austrian writings remain suspicously vague about this aspect. Schultz hence deserves full credit for making this case most explicit.

Among later writers, Baumol (1993, 2002) particularly stressed the role of entrepreneurial initiative in the process of imitation and technology transfer. Also Casson et al. (2006, p. 9) integrate certain aspects of the human capital approach by defining entrepreneurship as "a skill in processing information in connection with judgemental decisions." But the following three examples highlight the enduring impact of Schultz on contemporary human capital models of entrepreneurship more explicitly. Schmitz (1989) as well as Holmes and Schmitz (1990) build strongly on the notion of imitative entrepreneurship, assuming exogenous opportunities which (as an inevitable but unexplained product of the dynamic growth process) continuously arise in the form of disequilibria. In the model of Schmitz (1989) spillovers in the accumulation of knowledge cause economies to grow faster with a higher proportion of imitating entrepreneurs who implement the current techniques. In the model of Holmes and Schmitz (1990) people with greater entrepreneurial abilities specialise in the development of new products (in response to exogenous technological breakthroughs), e.g. by starting a new business, but can transfer that business to another person at later stages. This business transfer, which either might take place within a firm (e.g. shifting responsibilities among internal divisions) or by selling a company after its successful introduction, ultimately serves the division of labour between people with differential entrepreneurial abilities.

Finally, Lazear (2004) developed an alternative idea of differential entrepreneurial ability in an intriguing model of occupational choice. He distinctly characterised entrepreneurs as 'jacks-of-all-trades', who do not excel in any single skill, but are competent in many. While specialists can earn higher wages, when employed by others (e.g. in the R&D department of a large organisation), people with a balanced profile of talents may earn more income, when they found a business of their own, spotting and combining a variety of skills and people.

Lazear's model has already inspired an impressive range of empirical work. Wagner (2003), Lazear (2004, 2005), and Astebro (2005) provide evidence that the self-employed indeed tend to have a more varied experience in professional training and/or changes of profession than employed personnel. But Astebro (2005) also reports a negative impact of the variety in skills on the post entry income of entrepreneurs. Finally, Silva (2007) finds a positive and significant impact of the variety of previous work experience on the probability to become self-employed in cross-section analyses. But the effect disappears when fixed effects control for unobserved individual characteristics in panel regressions. He concludes that a balanced profile of talents matters as an innate ability, but rejects a causal interpretation of would-be entrepreneurs intentionally investing in a broader set of skills.

2.6 Rent seeking

William Baumol proposed that Schumpeter's enumeration of entrepreneurial new combinations "can usefully be expanded to include such items as innovations in rent-seeking procedures, for example, discovery of a previously unused legal gambit that is effective in diverting rents to those who are first in exploiting it" (Baumol 1990, p. 897)[16]. Defining entrepreneurs "to be persons who are ingenious and creative in finding ways that add to their own wealth, power, and prestige," Baumol (1990, p. 897) forcefully argues that the structure of incentives can direct opportunity-seeking behaviour into very different activities, some of them adding value to the total product of the economy, others just shifting rents between market participants.[17] Because the latter occur at a cost but produce no additional value, they are not only unproductive but even dysfunctional from the viewpoint of the economy at large. Economic policy is therefore responsible for defining the rules of the game such that opportunity-seeking abilities are channelled into productive value-creating as opposed to mere rent-shifting activities.

Baumol's definition of entrepreneurship includes all kinds of opportunitiy-seeking behaviour – in his own words encompassing, for instance, political rent seeking and "organised crime." He thus reminds us that the same opportunity seeking forces, which the various entrepreneurship theories generally consider to be beneficial to society, can have a serious downside, if the rules that govern the market are badly specified or lack proper enforcement. For the purpose of many empirical studies, the concept is certainly too broad to become operational, which might explain why in the new OECD definition Ahmad and Seymour (2006) restrict entrepreneurship to purely value creating activities. This, however, is difficult to reconcile with Schumpeter's emphasis on displacement effects, i.e. the shift of rents from gaining market share at the cost of other firms ("creative destruction").

2.7 Corporate entrepreneurship

Finally, we must address two delicate questions concerning the precise locus of entrepreneurship. The first question regards the permanence of behavioural characteristics. Schumpeter and others, who apply his narrower definition of innovative entrepreneurship, have argued that as entrepreneurial success leads to the building and subsequent expansion of organisations, the entrepreneurial resources

[16] The concept of economic rent originates in the idea of land rent, where it points to returns from a source of income, which cannot be expanded but is available in (approximately) fixed quantities. In its modern use, rent seeking means the acquisition of profits, for instance by the mere shift of monopoly rights, without creating additional value.

[17] "Today, unproductive entrepreneurship takes many forms. Rent seeking, often via activities such as litigation and takeovers, and tax evasion and avoidance efforts seem now to constitute the prime threat to productive entrepreneurship. ... Corporate executives devote much of their time and energy to legal suit and countersuit, and litigation is used to blunt or prevent excessive vigor in competition by rivals' (Baumol 1990, p. 915). Similarly, Baumol (2008) also relates the series of scandals and instances of excessive speculation on the financial markets to unproductive and occasionally illegal rent-shifting activities that divert some of the brightest and most entrepreneurial minds from creating 'real value'.

of the founder are likely to become absorbed by management responsibilities in the later stages of its development. According to this view, entrepreneurship cannot be an occupational category, but is restricted to those who establish novel combinations – with the start-up of a new business considered to be its purest manifestation. Consequently, many empirical studies of entrepreneurship are concerned with start-ups and new venture creation. A different concept appears in the models of occupational choice, which treat all the self-employed (or employers, more narrowly) as entrepreneurs. Entrepreneurship thus corresponds to the broader functions of general opportunity recognition and risk bearing, but as an empirical entity it is restricted to people who run an independent business.

This leads to the second question, which regards the role of entrepreneurship within the many large corporations that are not run by an independent founder, owner, and manager. Here Schumpeter takes the broader viewpoint. From his functional perspective, it is not only the independent business owners who are responsible for entrepreneurial activities. Equating entrepreneurship with business leadership he explicitly acknowledges that the entrepreneurs "may be the manager or some other employee." However, championing an endogenous model of innovation, he needs to explain what the pecuniary incentives for entrepreneurial initiative among a company's salaried personnel are. Rather vaguely, Schumpeter explains that in addition to the prospect of earning a higher salaried income, these business leaders tend to be driven by a strive for professional excellence and peer recognition. Consequently, Schumpeter (1939) points at the dilution of the entrepreneurial profit motive in the process of transformation from what he calls 'competitive' to 'trustified capitalism'.

The above explanation emphasises that shareholders delegate the entrepreneurial function to the top-level executives in the same way as they do with the functions of general management. Cast in modern terminology, these persons are frequently referred to as 'intrapreneurs' and stock options and other performance related payments are the means to give them a share in the company's residual profit. However, this simple transposition of the individual entrepreneur into the firm does not satisfy, especially when compared to more sophisticated studies of internal venture creation that deliberately take into account the organisational context of entrepreneurial activity within the firm. For example, Burgelman (1983a,b) pioneered the concept of 'corporate entrepreneurship'. In his model, first the 'structural context' is set-up by top-level executives who aim at keeping novel initiatives in line with the current concept of corporate strategy. Second, 'induced strategic behaviour' represents those initiatives that fit within the existing categories and correspond to the firms strategic planning. Finally, he postulates the existence of 'autonomous strategic behaviour', which is largely outside the firms current concept of strategy, and for which the strategic context still needs to be determined. Burgelman argues that the latter typically emerges at intermediate levels of the management hierarchy, where new ventures are a high-risk/high-reward personal strategy for advancement into the upper

ranks of the firm organisation with an according rise in status and pay. While Burgelman thus solves the Schumpeterian problem of rewards to entrepreneurship, the outcome of any entrepreneurial initiative ultimately depends on the acceptance of the top-level management to modify its concept of strategy as a result of it and correspondingly to modify its structural context of strategy selection.

Two important conclusions follow from the literature on corporate entrepreneurship. First, within a modern corporation the entrepreneurial function arises from the interplay between individual initiative (often at intermediate levels of management) and the organisational context (defined by the top level management). Second, the firms' success in exploiting novel opportunities varies according to the different ways of how the structural context of internal experimentation and selection is thus defined. As a consequence, entrepreneurship is no longer defined purely in individualistic terms, but embedded within the structural context of the firm organisation.

3. A modular reconstruction

Where do all the varying concepts and definitions leave us with regard to the general meaning of entrepreneurship? As a first conclusion, we must say that the economics profession has not produced any truly comprehensive explanation. Besides the observation of an astounding variety of approaches, the economists' ideas of entrepreneurship tend to be instrumental for the explanation of some other theoretic problem. For example, Marshall's 'undertaker' manages the business in a way that corresponds well with the neoclassical theory of production, while Hayek's approach primarily serves the purpose of explaining the process of competition and market co-ordination, and for Schumpeter entrepreneurship must explain the origins of innovation in the theory of economic development. Similarly, Knight's definition aims to justify the origins of profit and to explain the division of labour within the firm. Finally, the concepts of Schultz or Lazear serve to explain occupational choice within the approach of human capital theory.

Once we acknowledge that the various theories of entrepreneurship in the economics literature offer essential but only partial explanations of the phenomenon, we face two basic options. The first is to add as many important characteristics provided by these concepts and try to amalgate them into one single concept. Wennekers and Thurik (1999: 46) have probably provided the most elaborate statement of such an all-inclusive general definition:

> 'Entrepreneurship is the manifest ability and willingness of individuals, on their own, in teams, within and outside existing organisations to perceive and create new economic opportunities (new products, new production methods, new organisational schemes and new product-market combinations), and to introduce their ideas in the market, in the face of uncertainty and other obstacles, by making decisions on location, form and the use of resources and institutions'.

This definition provides an impressive synthesis of the manyfold ideas that have appeared in the literature. It simultaneously subsumes aspects of differential ability, intentionality, independent and corporate entrepreneurship, the discovery or creation of opportunities, enumerates the Schumpeterian typology of innovations, and emphasises uncertainty as well as decision making.

However, its comprehensiveness also comes at a cost. Most economists, for example, will critically miss one or the other distinction between the functions of innovation, technology diffusion, or market co-ordination, that lie at the heart of their concerns about entrepreneurship. The deeper problem is, that when we pile up attribute after attribute, the core concepts of entrepreneurship will neither become more specific, nor can it increase the generality of the basic premises, which are already included in the reference to its opportunity seeking nature. As I try to demonstrate below, a general behavioural definition can be stated in simpler terms, while the emphasis on particular economic functions would require additional differentiation.

The second option is to add analytic structure. In order to escape the taunted elusiveness of its core notion, this article proposes a modular concept of entrepreneurship, which (seemingly paradoxical) tries to integrate its *functional*, *behavioural* and *occupational* dimensions by means of explicitly differentiating them. The result is a modular kit of distinct concepts that form independent and identifiable intellectual building blocks, but nevertheless remain interrelated and complement each other (Table 1).

{Insert Table 1: The meaning of entrepreneurship: a modular reconstruction}

As a first building block, a large portion of the contemporary entrepreneurship literature can be summarized under the following general behavioural definition: *Entrepreneurship is the pursuit and exploitation of profit opportunities*. This states in general terms, what is unique about that entrepreneurs do. And apparently it is consistent with a number of more specific characterisations of entrepreneurial behaviour, such as the emphasis on ‘judgemental decision-making’, ‘cognitive leadership’, as well as the ‘creation of new means, ends, or means-ends relationships.’ Furthermore, to say that entrepreneurs ‘pursue’ opportunities, implies intentionality, while the notion of ‘exploitation’ brings in a criterion of success in the sense of an attempted realisation of venture ideas. It does not require sustained economic viability, since many new ventures may fail and actually do, but still serve the economic functions, e.g. of introducing novel combinations to the market.

For understanding how entrepreneurial behaviour contributes to the economic process, it is necessary to further distinguish at least three particular functions, which form the second building block. As an

equilibrating force, the alert discovery and exploitation of given opportunities (i) improves *market co-ordination* through the detection and elimination of imbalances in the price/quantity relationships; and (ii) incites *technology diffusion* through the adoption of novel practices and techniques. As a disequilibrating force, entrepreneurship creates (iii) new opportunities by means of *innovation*.

Each of the three functions of market co-ordination, technology diffusion, and innovation originate in the entrepreneurial pursuit and exploitation of opportunities to make a profit. While the *discovery* of an opportunity is the appropriate behavioural characterisation of the two former functions, the latter implies the *creation* of an opportunity. Since the notions of *pursuit* and *exploitation* of an opportunity encompass both, the general behavioural characterisation identifies the only attribute that is both comprehensive and unique to the nature of entrepreneurship. None of the pure functional theories ever accomplished that on its own. Consequently, we should regard the behavioural definition as constitutive to the phenomenon of entrepreneurship, while the functional concepts from the economics literature focus on more specific and derived characteristics.

There is also a certain hierarchy among the three different functions of entrepreneurship. *Every* company must be alert to price signals in the factor and product markets and thus contributes to market coordination. Similarly, *most* companies need to adopt new technologies that already exist on the market but are new to the firm. In contrast, relatively *few* firms actually introduce innovations that are new to the market. As a consequence, some firms simultaneously conduct all the three functions at a time, whereas others specialise in exploiting opportunities of a particular kind. Some firms may experience the three modes at different times. For example, firms may start as technology adopters and later become active innovators. Conversely, successful innovative start-ups may at a later stage recede to a more routine-based mode of operations.

An important point to keep from this discussion is that all the three forms of entrepreneurship are essential and complementary forces of economic development. The economic system needs creative entrepreneurs as much as it needs imitators who propel the diffusion of new technologies or those that help to co-ordinate demand and supply by means of processing the price signals from the market. Only if all of them are present, we can expect a varied and healthy ecology of organisations that is conducive to the growth of income, employment and welfare. Though it may seem paradoxical, it was the consistent analytical separation of these functions that allowed us to draw this conclusion firmly. At the same time, the modular approach has preserved the distinct analytical foundations of entrepreneurship in a way that enables us to apply them accurately within their respective fields of use – be it for studying processes of market coordination, the firms' adaptation to exogenous changes, or the origin and impacts of innovation.

4. Empirical illustration

The many different theories surveyed in the previous sections have clearly demonstrated that one cannot represent entrepreneurship empirically by a single unit of observation. The behavioural and the functional approaches in particular cannot provide unique criteria for their identification. In addition, we have distinguished between two occupational categories that may both be the locus of entrepreneurial activity: First, *independent entrepreneurs* are opportunity-seeking in the sense of the general behavioural definition, but simultaneously perform the functions of risk-bearing (ownership) and managing their business. Not surprisingly, we find this type most frequently in small and medium-sized enterprises, although there exist no definite restrictions by size. Alternatively, in firms with separate ownership and control the share-holders delegate the opportunity-seeking functions to its management. The locus of entrepreneurship is then with salaried employees, or *corporate entrepreneurs*. Even though these need to have similar capabilities of imagination and (cognitive) leadership as well as judgemental decision making, their activities depend more on the particular organisational context within the firm and the respective structure of incentives. As the traditional Schumpeterian explanation of temporary monopoly profits does not directly apply to salaried personnel, other pecuniary motives must be in place to drive their entrepreneurial initiative. For example, performance related pay and the general increase in valuation at the external job market may boost incentives especially for top-level executives, whereas the prospect of promotions within the hierarchy of an organisation can become a powerful driver of entrepreneurial initiative among managers at lower and intermediate levels.

Accordingly, we find a variety of indicators that capture part of the entrepreneurship phenomenon empirically. Focussing on entrepreneurs as individuals, the occupational category of persons being self-employed is probably the most traditional target of analysis. Some studies even go beneath that level and examine the individual's preferences to become self-employed as a variable of latent entrepreneurship (e.g., Grilo and Irigoyen, 2006; Grilo and Thurik, 2005). Not surprisingly, self-employment is closely related to the importance of small and medium-sized enterprises (SMEs), which represent the corresponding empirical unit at the firm level. For the purpose of assessing entrepreneurial dynamics, the start-up of a novel business is of particular importance, as it not only represents a characteristic instance of Schumpeterian innovation, but simultaneously gives birth to the manifold potential of opportunity-seeking business behaviour more generally. Consequently, many empirical studies of entrepreneurship deal with firm entry and new venture creation.

Based on just these indicators, one might conclude that entrepreneurship is a dichotomous variable: either a person is self-employed or not; either a firm is newly founded and small, or it is not. However, while these empirical units leave little scope to discriminate between varying degrees of

entrepreneurship, none of the economic theories (other than the occupational ones) would suggest that the pursuit and exploitation of opportunities is a binary phenomenon. In contrast, they regularly relate entrepreneurship to differences in performance, which depend on varying cognitive, social and other capabilities. If we take the behavioural and functional approaches serious, we must apply them beyond the initial stages of firm formation and study the post-entry evolution of firms (e.g., Burgelman and Grove, 2007; Santarelli and Vivarelli, 2007). This leads us to take into account data, e.g., on firm duration (e.g., Kaniovski and Peneder, 2008) and growth as indicators of entrepreneurial performance. From this perspective, fast growing firms ('gazelles'), for instance, manifest a higher degree of entrepreneurship in terms of the actual pursuit and exploitation of business opportunities than small firms with little or no ambition to grow (see, e.g., Lunati, 2008; Henrekson and Johansson, 2008; Autio and Hölzl 2008; or Hölzl, forthcoming).

To give another example, Peneder (2008A) applies the functional definitions of entrepreneurship in Table 1 to provide an empirical taxonomy of firms. His classification is based on the micro-data of the Third Community Innovation Survey (CIS3), which was made available by Eurostat through its recently established Safe Center. These data cover the innovation activities of more than 78,000 firms from 22 European countries over the period 1998 to 2000. The CIS database offers a very detailed account of variables on innovations behaviour. Another strength is the use of a stratified sample of companies. While the sampling rates differ across countries, the stratification by size-class and sector of activity should ensure that the samples are representative.

Table 2 summarises the rules for identifying the firms by different types of entrepreneurship:

— *Creative entrepreneurs*, as defined by Schumpeter, are characterised by own innovations, which we can further distinguish between firms performing either *process innovations,* developed mainly by their own enterprise or enterprise group, *product innovations* that are new to the market, or *both*.

All other firms are characterised as *adaptive entrepreneurs*, further separated into two groups:

— In accordance with the entrepreneurship theory of Theodore Schultz, the group of *technology adopters* comprises firms that either record product innovations that are new to the firm, but not to new to the market, or process innovations that have been developed mainly in co-operation with other enterprises or institutions.

— Finally, there is a large residual group of adaptive entrepreneurs that pursue *opportunities other than from technological innovation*. These may originate in pure market co-ordination (in the sense of Hayek and Kirzner) as well as from non-technological innovations (e.g. in terms of exploiting new resources, markets, etc. in the sense of Schumpeter's broader definition of innovation).

{Insert Table 2: Entrepreneurship and innovation types: identifying assumptions}

Table 3 compares the share of firm types with respect to five broad country groups: (i) *Continental Europe* (Austria, Belgium, Germany, and Luxembourg); (ii) *Northern Europe* (Denmark, Finland, Iceland, Norway and Sweden); (iii) *Southern Europe* (Greece, Italy, Spain and Portugal); (iv) *NMS10*, i.e. the new EU member states from the first wave of eastern expansion (Czech Republic, Estonia, Latvia, Lithuania, Hungary, the Slovak Republic, and Slovenia; and finally (v) *NMS2* , i.e. the latest wave of new member states (Bulgaria and Romania).

In addition to the considerable heterogeneity between countries, the table displays a congruence in the relative importance of firm types that relate more innovative modes of entrepreneurship with higher levels of per capita income. For example, we find consistently higher shares of creative entrepreneurship in the old as compared to the new member states of the European Union. For example, if we consider firms classified as creative entrepreneurs with product innovations (either with or without process innovations), their share in the total firm population is about 22.0% in both Continental and Northern Europe, ca. 20.4% in the Southern European countries, but only 13.5% in the NMS10 and 11.0% in the NMS2. For creative entrepreneurs doing only process but no product innovation, the share is again highest in Continental Europe (10.0%), but higher in the Southern (8.5%) than in the Norther European countries (6.9%), followed by the NMS10 (5.8%) and the NMS2 (1.5%).

On average, only 10% of observations are classified as pure technology adopters, i.e. firms that actively pursue new technology from external sources without significant own innovation. Their relative small share probably reflects two causes. On the one hand, major instances of technology adoption from external sources may be rather discrete events when compared to own innovation activities. While all firms must purchase technology from external sources at some point, only few do so within the short time interval of three years. On the other hand, the low share of this group may also indicate that technology adoption and own innovation are closely related and regularly intertwined. Consistent with the latter interpretation, Continental Europe exhibits the highest share of technology adopters, followed by the North, South, NMS10 and NMS2. Exactly the opposite ranking applies to the firms whose business model relies solely on the exploitation of opportunities other than from technological innovation, which e.g. is 84.3% in the NMS2 and only 46.5% in Continental Europe.

{Insert Table 3: Shares of entrepreneurship types in the total number of firms in %)}

5. Summary and discussion

By differentiating the behavioural, functional and occupational dimensions of entrepreneurship, the proposed modular concept enables us to better understand how the manifold theories in the literature relate. It turns out that drawing careful distinctions between existing theories ultimately eases their integration into a more coherent and comprehensive overall picture. While some ideas that surfaced in the history of economic thought must clearly be abandoned, others cover complementary aspects that belong to the same general class of opportunity seeking behaviour, more generally. In particular, economists have pointed at the entrepreneurial function of market co-ordination through the alert discovery of imbalances in prices, the adoption of new technologies, and the introduction of novelty through innovation. It has been shown that each of them is consistent with and can be subsumed under the general definition of entrepreneurship as the pursuit and exploitation of profit opportunities.[18]

The embeddednes of the three major functional theories within a general behavioural definition helps to get rid of several contradictions and inconsistencies that burden the debate. For example, Schumpeter's theory of innovation caused considerable confusion by restricting entrepreneurship to an elite group of innovative businesses. The latest definition by the OECD still reflects that dilemma. Without questioning the very importance of the Schumpeterian theory, the critical question is, why would we then need a separate analytical category of 'entrepreneurship' in addition to that of 'innovation'? In contrast, according to the general behavioural definition, any competitive firm must act entrepreneurially in order to stay viable. It simply characterises what is the most essential of running a business, irrespective of how it effects the market process, or whether ownership (and risk-bearing) is separated from control. The common definition by occupation, which regards all the self-employed as entrepreneurs, implicitly assumes the broad concept of entrepreneurship as opportunity seeking behaviour but cannot replace it as a general definition, because it excludes all kinds of corporate entrepreneurship.

The modular concept of entrepreneurship presented in Table 1 comprises the central message of this article. In contrast, the following discussion aims only to rearrange and integrate its core notions within a general framework of entrepreneurship policies, all of which have already been discussed

[18] Please note, that there is no *a priori* reason why this definition could not be opened to include non-market entrepreneurs, who use business techniques to address social goals (e.g., Shockley et al., 2008). However, by going beyond the pecuniary profit motive, it should be clear that one needs to provide a careful explanation of the particular goals, incentives and origins of such initiative in order to be of analytic use.

more explicitly and more thoroughly in the literature.[19] Figure 1 summarises the stylised framework, relating the various determinants, empirical forms and economic impacts of entrepreneurship to particular sources of market failure and policy rationales.

Distinguishing between firm structure and firm dynamics, we find the various *empirical units*, or forms of entrepreneurship, at the center of Figure 1. Indicators of firm structure include the population share of latent entrepreneurs, the number of self-employed, and the number of SMEs. Firm dynamics refer to the entry of new firms, their survival, and the particular instances of fast growing 'gazelles'. All of these characterise important aspects of an economy's overall entrepreneurial activity. Serving the *economic functions* of market coordination, technology diffusion and own innovation, the various economic theories give us good reasons to expect that a high degree of entrepreneurship is conducive to economic development and thus to the *long-run growth* of productivity, income and employment. In Figure 1 these impacts are drawn within the arrows to the right of the empirical units.

Following Hölzl et al (2008), these entrepreneurial dynamics are framed within a set of three broad categories of influential factors, i.e. opportunities, resources, and entrepreneurship environment/infrastructure. Beginning with *opportunities*, one can further distinguish between regulatory measures and knowledge creation as important determinants. For example, the removal of barriers to entry, the balancing of incentives for investors and entrepreneurs in case of failure, or the reduction of administrative costs are all important rationales for *regulatory reform*. Following Baumol, these policies must aim to direct opportunity-seeking behaviour towards value-creating instead of mere rent-shiftinig activities. Conversely, rationales for policy interference in the process of *knowledge creation* emphasise the partially public goods nature of innovation, where positive spillovers and limited appropriability are due to missing or incomplete markets for new knowledge (Peneder, 2008B).

{Insert Figure 1: The policy framework}

Entrepreneurial activity also depends on the availability of human and financial *resources*. This aspect is illustrated at the bottom of Figure 1. Market failure in the financial markets is mainly related to problems of asymmetric information due to moral hazard and adverse selection, which results in a financing gap that particularly affects small, young and innovative firms (Beck et al., 2008; Peneder, 2008C). In contrast, public policies addressing human resources have, among other intentions, the aim

[19] See, for example, Ahmad and Hoffmann (2008), Audretsch, Grilo and Thurik (2007), Baumol, Litan and Schramm (2007), Bonturi (2008), Hoffmann (2007), Hölzl et al. (2008), Link (2007), Stevenson and Lundström (2007), or Verheul et al. (2001).

of tapping into the positive externalities generated by skilled and educated people and to build up dynamic capabilities. Furthermore, the efficiency of capital and labour markets has an important impact on the speed of reallocation of resources between promising and failing ventures and depends on the particular regulation of factor market. The third set of factors is broadly called entrepreneurship *environment* and *infrastructure*. In this category the rationales for policy intervention mainly relate to some form of network externality and fixed transaction cost (e.g. by sponsoring incubator or business angel networks) or public goods, but also comprise cultural aspects such as the general valuation of independence and self-realisation, the social status associated with business success and the tolerance towards failure.

To conclude, market failures due to lacking competition, limited appropriability, positive spillovers, asymmetric information, network externalities, and public goods, as well as financial and human resources affect the incentives to pursue and the capabilities to exploit entrepreneurial opportunities. The consequent nature and degree of entrepreneurial activity further affects the efficiency of market coordination, the speed of technology diffusion, and the rate of own innovation in an economy. Within the proposed modular concept, public policy thus relates directly to the three functions by which entrepreneurship affects the process of economic development. However, the variety of different policy channels also demonstrates that entrepreneurship is better not conceived as a separate policy field, such as policies for SMEs, innovation, education, or specific sector regulations. Instead, the 'fostering of entrepreneurial dynamics' should become a joint objective to better integrate different policy fields and direct them towards a common purpose.

Acknowledgements

This work has benefitted from a number of critical and very constructive comments that helped to gain a better and more precise understanding of the manifold approaches to entrepreneurship. In particular, I want to thank Robert Burgelman, Werner Hölzl, Anastassios Karayiannis, and Edward Lazear for sharing their knowledge, posing probing questions or otherwise helping to clarify some of the more intricate aspects of entrepreneurship.

References

Acs, Z.J., Audretsch D.B., (2003), *Handbook of Entrepreneurship Research*. Boston: Kluwer.

Ahmad, N., Seymour, R.G. (2008), Defining Entrepreneurial Activity. Definitions Supporting Frameworks for Data Collection, OECD Statistics Working Papers 2008/01, Paris: OECD.

Ahmad, N., Hoffmann, A.N. (2008), A Framework for Addressing and Measuring Entrepreneurship, OECD Statistics Working Papers 2008/02, Paris: OECD.

Audretsch, David B. (1995), *Innovation and Industry Evolution*. Cambridge MA: MIT Press.

Audretsch, D.B., Grilo, I., Thurik, A.R. (eds.), (2007), *Handbook of Research on Entrepreneurship Policy*, Edward Elgar, Cheltenham.

Autio, E., Hölzl, W. (2008), Addressing Challenges for High-growth Companies: Summary and Conclusions of the Europe Innova Gazelles Innovation Panel, Europe INNOVA Paper No. 6, Office for Official Publications of the European Communities, Luxembourg.

Balabkins, N.W. (2003), Adaptation Without Attribution? The Genesis of Schumpeter's Innovator, in Backhaus, J. (ed.), *Joseph Alois Schumpeter. Entrepreneurship, Style and Vision*. Boston: Kluwer: 203-220.

Baumol, W.J. (2008), Small Enterprises, Large Firms, Productivity Growth and Wages, *Journal of Policy Modeling* 30 (4), 575-589.

Baumol, W.J. (2004), Entrepreneurial Enterprises, Large Established Firms and Other Components of the Free-Market Growth Machine, *Small Business Economics* 23 (9), 9-21.

Baumol, W.J. (2002), The Free-Market Innovation Machine. Analyzing the Growth Miracle of Capitalism, Princeton, Princeton University Press.

Baumol, W.J. (1993), *Entrepreneurship, Management, and the Structure of Payoffs*. Cambridge MA: MIT Press.

Baumol, W.J. (1990), Entrepreneurship: Productive, Unproductive, and Destructive, *Journal of Political-Economy* 98: 893-921.

Baumol, W.J. (1968), Entrepreneurship in Economic Theory, *American Economic Review* 58 (papers & proceedings): 64-71.

Baumol, W.J., Litan, R.E., Schramm, C.J. (2007), Sustaining Entrepreneurial Capitalism, *Capitalism and Society* 2 (2), 1-36.

Beck, T., Demirgüc-Kunt, A., Maksimovic, V. (2008), Financing Patterns around the World: Are Small Firms Different?, *Journal of Financial Economics* 89, 467-487.

Bonturi, M. (2008), Entrepreneurs as Drivers of Innovation and Growth, (Note by ICE), Paris, OECD.

Burgelman, R.A. (1983a) Corporate Entrepreneurship and Strategic Management: Insights From a Process Study, *Management Science* 29: 1349-1364.

Burgelman, R.A. (1983b) A Model of Interaction of Strategic Behavior, Corporate Context, and the Concept of Strategy, *Academy of Management Review* 8: 61-70.

Burgelman, R.A., Grove, A.S. (2007), Let Chaos Reign, Then Rein In Chaos – Repeatedly: Managing Strategic Dynamics for Corporate Longevity, *Stanford Research Paper* No. 1954.

Casson, M. (1982) *The Entrepreneur. An Economic Theory*. Aldershot, UK: Gregg Revivals.

Casson, M., Yeung, B., Basu, A., Wadeson, W. (eds.), (2006), *The Oxford Handbook of Entrepreneurship*, Oxford, Oxford University Press.

Davidsson, P. (2003) The Domain of Entrepreneurship Research: Some Suggestions, in: Katz, J. and Shepherd, S., (eds.) *Advances in Entrepreneurship, Firm Emergence and Growth*, Vol.6. Amsterdam, Elsevier, 315-372.

Ekelund, R.B., Hébert R.F. (1991), Dupuit's Characteristics-Based Theory of Consumer Behavior and Entrepreneurship, *Kyklos* 44: 19-34.

Endres, A.M., Woods, C.R. (2006), Modern Theories of Entrepreneurial Behaviour: A Comparison and Appraisal, *Small Business Economics* 26: 189-202.

Evans, D.S., Jovanovic B. (1989), An Estimated Model of Entrepreneurial Choice and Liquidity Constraints, *Journal of Political Economy* 97: 808-827.

Grebel, T. (2007), Neo-Schumpeterian Perspectives in Entrepreneurship Research, in: Hanusch, H., Pyka,A., Elgar Companion to Neo-Schumpeterian Economics, Edward Elgar, Cheltenham UK.

Grebel, T., Pyka, A., Hanusch, H (2004), An Evolutionary Approach to the Theory of Entrepreneurship, in Hölzl W and Foster J (eds), Applied Evolutionary Economics and Complex Systems, Cheltenham: Edward Elgar, pp 155-180.

Griffin, R., Karayiannis, A.D. (2002), T. Veblen's Evolutionary Theory of Entrepreneurship, *History of Economic Ideas* 10 (2), 61-83.

Grilo, I., Irigoyen, J.M. (2006), Entrepreneurship in the EU: To Wish and Not to Be, *Small Business Economics* 26 (4), 305-318.

Grilo, I., Thurik, A.R. (2005), Latent and Actual Entrepreneurship in Europe and the US: Some Recent Developments, *International Entrepreneurship and Management Journal* 1, 441-459.

Hartog, J., Ferffer-i-Carbonell, A., Jonker, N. (2002), Linking Measured Risk Aversion to Individual Characteristics, *Kyklos* 55: 3-26.

Hayek, F.A. (1978), *New Studies in Philosophy, Politics, Economics and the History of Ideas*. London: Routledge.

Hayek, F.A. (1945), The Use of Knowledge in Society, *American Economic Review* 35: 519-530.

Hébert, R.F., Link A.N. (1989), In Search of the Meaning of Entrepreneurship, *Small Business Economics* 1: 39-49.

Hébert, R.F., Link A.N. (1982), *The Entrepreneur. Mainstream Views and Radical Critiques*. New York: Praeger.

Henrekson, M., Johansson, D. (2008), Gazelles as Job Creators – A Survey and Interpretation of the Evidence, IFN Working Paper No. 733.

Hoffmann, A.N. (2007), A Rough Guide to Entrepreneursip Policy, in: in Audretsch, D., Grilo, I., Thurik, A. (eds.), Handbook of Research on Entrepreneurship Policy, Edward Elgar, Cheltenham, 140-171.

Holmes, T.J., Schmitz J.A. (1990), A Theory of Entrepreneurship and Its Application to the Study of Business Transfers, *Journal of Political Economy* 98: 265-294.

Hölzl, W. (forthcoming), Is the R&D behaviour of fast growing SMEs different? Evidence from CIS data for 16 countries, *Small Business Economics*.

Hölzl, W. (coord.), Peneder, M., Silva-Porto, M., van der Horst, R., Telussa, J. (2008), The Economics of Entrepreneurial Activity and SMEs: Policy Implications for the EU, Background report prepared for the *European Competitiveness Report 2008*.

Kaniovski, S., Peneder, M. (2008), Determinants of Firm Survival: A Duration Analysis Using the Generalized Gamma Distribution, *Empirica*, 35 (1), 41-58.

Karayiannis, A.D. (2009), The Marshallian Entrepreneur, *History of Economic Ideas* (forthcoming).

Karayiannis, A.D. (2005), The American Apogee of Contributions on Entrepreneurship (1880s – 1920s), *American Review of Political Economy* 3 (2), 72-96.

Karayiannis, A.D. (2003), Entrepreneurial Functions and Characteristics in a Proto-Capitalist Economy: The Xenophonian Entrepreneur, *Wirtschaftspolitische Blätter* 50: 553-563.

Kihlstrom, R.E., Laffont J.J. (1979), A General Equilibrium Entrepreneurial Theory of Firm Formation Based on Risk Aversion, *Journal of Political Economy* 87: 719-748.

Kirzner I.M. (1997a), Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach, *Journal of Economic Literature* 35: 60-85.

Kirzner, I.M. (1997b), *How Markets Work Disequilibrium, Entrepreneurship and Discovery*, London: IEA.

Knight, F. (1921), *Risk, Uncertainty and Profit*, New York: Houghton Mifflin Co. (quotation taken from reprint in Putterman Louis and Randall S Kroszner (1996) The Economic Nature of the Firm Cambridge: Cambridge University Press: 60-65).

Lazear, E.P. (2005), Entrepreneurship, Journal of Labour Economics 23: 649-680.

Lazear, E.P. (2004), Balanced Skills and Entrepreneurship, *American Economic Review* 94: 208-211.

Leibenstein, H. (1968), Entrepreneurship and Development, *American Economic Review* 58: 72-83.

Link, A.N. (2007), Public Policy and Entrepreneurship, in Audretsch, D., Grilo, I., Thurik, A. (eds.) Handbook of Research on Entrepreneurship Policy, Edward Elgar, Cheltenham, 130-139.

Lunati, M. (2008), High Growth SMEs, Innovation, Intellectual Assets and Value Creation, draft synthesis report of the Working Party on SMEs and Entrepreneurship (WPSMEE), OECD, Paris.

Mangoldt H.v. (1855), Die Lehre vom Unternehmergewinn, Leipzig: Teubner (reprint by Sauer u. Auvermann, Frankfurt 1966).

Marshall, A. (1890/1920), *Principles of Economics*. 8th edn. London: MacMillan.

Menger, C. (1871), *Grundsätze der Volkswirtschaftslehre*. 2nd edn. Vienna: Hölder-Pichler-Tempsky.

Mises, L. (1949), *Human Action. A Treatise on Economics*. London: William Hodge and Company.

Peneder, M. (2008A), Entrepreneurship, Technological Regimes and Productivity Growth. Integrated Classifications of Firms and Sectors, EU KLEMS Working Paper No. 28.

Peneder, M. (2008B), The Problem of Private Under-investment in Innovation: a Policy Mind-map, *Technovation* 28, 518-530.

Peneder, M. (2008C), The Impact of Venture Capital on Firm Growth and Innovation, paper presented at the 15th *Global Finance Conference* in Hangzhou, China, 18th – 20th of May 2008.

Plehn-Dujowich, J.M. (2009), Entry and Exit by New versus Existing Firms, *International Journal of Industrial Organization* 27, 214-222.

Ricketts, M. (2006), Theories of Entrepreneurship: Historical Development and Critical Assessment, in Casson, M., Yeung, B., Basu, A., Wadeson, W. (eds.), *The Oxford Handbook of Entrepreneurship*, Oxford, Oxford University Press, 33-58.

Lionel Robbins (1932, 2nd ed., 1935). *An Essay on the Nature and Significance of Economic Science*, London: Macmillan.

Sahlman, W.A., Howard H Stevenson, Michael J Roberts and Amar Bhidé (1999) *The Entrepreneurial Venture*. 2nd ed., Cambridge MA: Harvard Business School Press.

Santarelli, E., Vivarelli, M. (2007), Entrepreneurship and the Process of Firms' Entry, Survival and Growth, *Industrial and Corporate Change* 16 (3): 455-488.

Schmitz J.A. (1989) Imitation, Entrepreneurship, and Long-run Growth, *Journal of Political Economy* 97: 721-739.

Schumpeter, J.A. (1954), *History of Economic Analysis*, Oxford University Press, Oxford.

Schumpeter, J.A. (1939), *Business Cycles. A Theoretical, Historical, and Statistical Analysis of the Capitalist Process*, 2 Volumes, New York: McGraw Hill.

Schumpeter, J.A. (1928), Unternehmer, in *Handwörterbuch der Staatswissenschaften,* Jena: Gustav Fischer, 4th edn., Vol. 8: 476-486.

Schumpeter, J.A (1911) *Theorie der wirtschaftlichen Entwicklung*, 4th edn., Berlin: Duncker & Humblot.

Schultz, T.W. (1975) The Value of the Ability to Deal with Disequilibria, *Journal of Economic Literature* 13: 827-846.

Shane, S. (2004) *A General Theory of Entrepreneurship. The Individual-Opportunity Nexus*, Cheltenham (UK): Edward Elgar.

Shane, S., E.J. (2003) The Individual-Opportunity Nexus, in Acs, Zoltan J and David B Audretsch (eds), *Handbook of Entrepreneurship Research. An Interdisciplinary Survey and Introduction*. Boston (Mass): Kluwer: 161-194.

Shane, S., Venkataraman, S. (2000) The Promise of Entrepreneurship as a Field of Research, *Academy of Management Review* 25: 217-226.

Shockley, G.E., Frank, P.M., Stough, R.R. (eds.), *Non-market Entrepreneurship. Interdisciplinary Approaches*, Cheltenham, UK, Edward Elgar.

Silva, O. (2007), The Jack-of-all-Trades Entrepreneur: Innate Talent or Acquired Skill?, *Economics Letters* 97 (2): 118-123.

Stevenson, L, Lundström, A. (2007), Dressing the Emperor: the Fabric of Entrepreneurship Policy, in: in Audretsch, D., Grilo, I., Thurik, A. (eds.) Handbook of Research on Entrepreneurship Policy, Edward Elgar, Cheltenham, 94-129.

Streissler, E.W. (1994), The Influence of German and Austrian Economics on Joseph A. Schumpeter, in: Shionoya, Y., Perlman, M., *Schumpeter in the History of Ideas*, Ann Arbor, University of Michigan Press.

Streissler, E.W. (1989), Der Unternehmer in der deutschen Nationalökonomie des 19. Jahrhunderts, in: Gahlen, B., Meyer, B., Schumann, J. (eds.), *Wirtschaftswachstum, Strukturwandel und dynamischer Wettbewerb*, Springer, Berlin, pp. 17-33.

Streissler, E.W. (1988), The Intellectual and Political Impact of the Austrian School of Economics, *History of European Ideas* **9**: 191-204.

Tedlow, R.S. (2001) *Giants of Enterprise. Seven Business Innovators and the Empires They Built*. New York: HarperCollins.

Van Praag, M.C. (1999), Some Classic Views on Entrepreneurship, *De Economist* 147 (3), 311-335.

Van Praag, M.C., Van Ophem, H. (1995), Determinants of Willingness and Opportunity to Start as an Entrepreneur, *Kyklos* 48: 513-540.

Venkataraman, S. (1997), The Distinctive Domain of Entrepreneurship Research, in Katz, Jerome A (ed.), *Advances in Entrepreneurship, Firm Emergence and Growth.* Volume 3, Greenwich, Connecticut: JAI Press: 119-138.

Verheul, I., Wennekers, S., Audretsch, D.B., Thurik, R. (2001), An Ecclectic Theory of Entrepreneurship, Tinbergen Institute Discussion Paper TI2001-030/3.

Wagner, J. (2003), Testing Lazear's Jack-of-all-trades View of Entrepreneurship with German Microdata, Applied Economics Letters 10,: 687-89.

Wennekers, S., Thurik, R.A. (1999), Linking Entrepreneurship and Economic Growth, *Small Business Economics* 13: 27-55.

Witt, U. (1999), Do Entrepreneurs Need Firms? A Contribution to a Missing Chapter in Austrian Economics, *Review of Austrian Economics* 11: 99-109.

Witt, U. (1998), Imagination and Leadership – the Neglected Dimension of an Evolutionary Theory of the Firm, *Journal of Economic Behavior & Organization* 35: 161-177.

Table 1: The meaning of entrepreneurship: a modular reconstruction

1st building block: General behavioral definition

Entrepreneurship is the pursuit and exploitation of profit opportunities.

Selected characterisations of entrepreneurial behaviour:

(i) Taking judgemental decisions (Knight, Casson, Hébert and Link)

(ii) Creating new means, ends, or means-ends relationships (Venkataraman, Shane)

(iii) Cognitive leadership (Witt)

2nd building block: Functional differentiation

Equilibrating: (i) Market co-ordination (Hayek, Kirzner)

(ii) Technology adoption/diffusion (Schultz)

Disequilibrating: (iii) Innovation (Schumpeter)

3rd building block: Occupational categories

Independent entrepreneurs: Owner-managers running a businesses (Cantillon, Knight, ..., Lazear)

Corporate entrepreneurs: Managers pursuing opportunities on the market but within the organisational context of the firm (Burgelman)

Empirical units of observation, e.g.

(i) Latent entrepreneurship
(ii) Self-employment
(iii) Small and medium-sized enterprises
(iv) Firm entry
(v) Firm survival
(vi) Firm growth

Table 2: Assumptions for the empirical identification of entrepreneurship types

Classification of firms	**Identifying restrictions**
Creative entrepreneurship with ...	
... product and process innovations	Own process *and* product innovations (new to the market; by own enterpr.)
... product innovations	Own product innovations (new to the market)
... process innovations	Own process innovations (developed mainly by own enterprises)
Adaptive entrepreneurship with ...	
... technology adoption	Innovation mainly by or in co-operation with other enterprises/institutions
... other opportunities	Neither process nor product innovations

Source: Peneder (2008A)

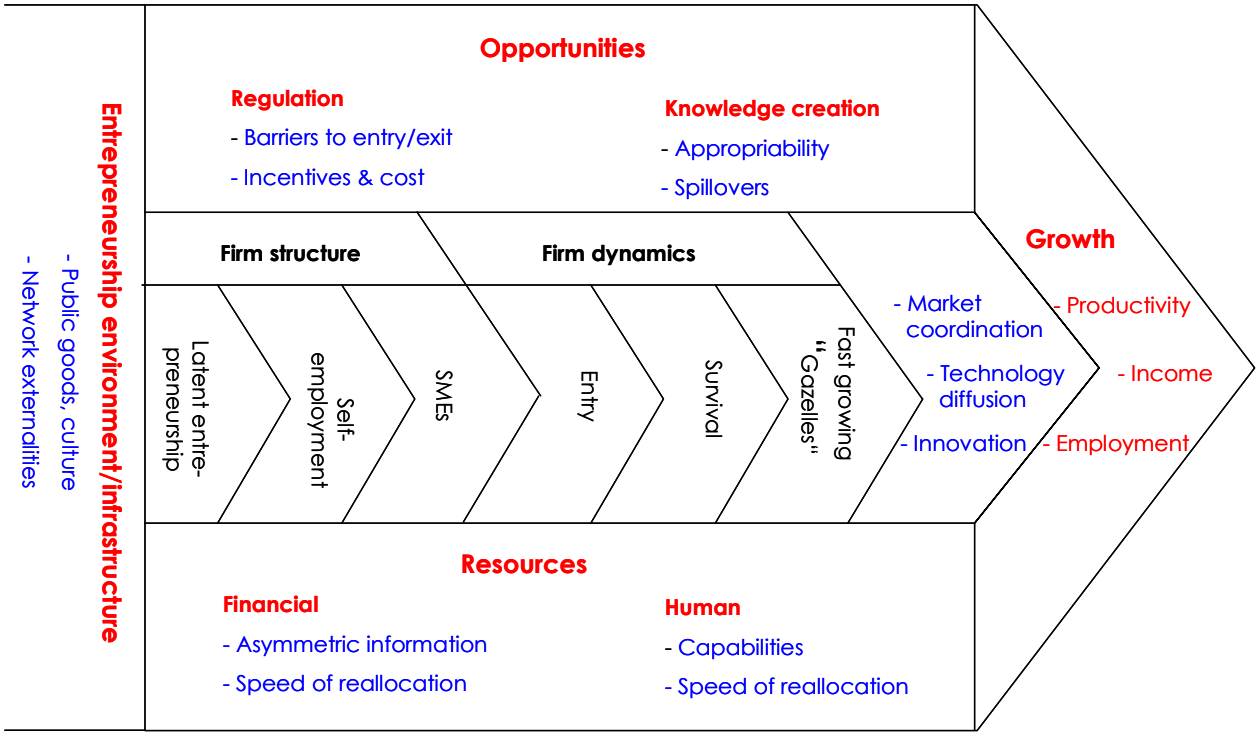
Table 3: Distribution of entrepreneurship types by country group in % of total firm population

Classification of firms	Continental Europe	Northern Europe	Southern Europe	NMS10	NMS2	Total
Creative entrepreneurship with ...						
...product & process innovations	8.98	7.02	9.24	5.53	5.49	7.14
... product innovations	13.01	14.89	11.13	8	5.53	9.58
... process innovations	9.99	6.86	8.53	5.84	1.47	5.99
Adaptive entrepreneurship with ...						
... technology adoption	21.54	12.46	11.16	9.79	3.21	9.72
... other opportunities	46.47	58.77	59.93	70.84	84.3	67.57
Total	*100*	*100*	*100*	*100*	*100*	*100*

Source: Peneder (2008A) based on data from the Third Community Innovation Survey (EUROSTAT)

NB: *Continental Europe* = Austria, Belgium, Germany, and Luxembourg; *Northern Europe* = Denmark, Finland, Iceland, Norway, and Sweden; *Southern Europe* = Greece, Italy, Spain, and Portugal; *NMS10* = Czech Republic, Estonia, Latvia, Lithuania, Hungary, Slovak Republic, Slovenia; *NMS2* = Bulgaria and Romania.

Figure 1: The entrepreneurship policy framework



Medieninhaber (Verleger), Hersteller: Österreichisches Institut für Wirtschaftsforschung • Wien 3, Arsenal, Objekt 20 • A-1103 Wien, Postfach 91 • Tel. (43 1) 798 26 01-0 • Fax (43 1) 798 93 86 • http://www.wifo.ac.at/ • Verlags- und Herstellungsort: Wien