UNITED NATIONS
UNIVERSITY

UNU-WIDER
World Institute for Development
Economics Research

Research Paper No. 2008/20

Entrepreneurship in Economic Development

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March 2008

Abstract

What is the role of entrepreneurship in economic development? At a minimum the answer should be able to explain the role of entrepreneurs in the structural transformation of countries from low income, primary-sector based societies into high-income service and technology based societies. More broadly though, it should also be able to explain the role of entrepreneurs in the opposite pole of stagnating development (including conflict) and in high innovation-driven growth. Although economic development lacks a 'general theory' of entrepreneurship, which could encompass a variety of development experiences, much progress has been made in extending the understanding of entrepreneurship in the process of development. This paper surveys the progress with the purpose of distilling the outlines for a more general theory of entrepreneurship in economic development. Entrepreneurship in developing countries remains a relatively under-researched phenomenon, so by surveying the current state of research, and by discussing the role of entrepreneurship in dual economy models of structural transformation and growth, a secondary objective of this paper is to identify avenues for further research. Finally, the policy implications from the economic literature suggest that a case for government support exists, and that this should focus on the quantity, the quality, and the allocation of entrepreneurial ability. Many routinely adopted policies for entrepreneurship, such as provision of credit and education, are shown to have more subtle effects, not all of which are conducive to growth-enhancing entrepreneurship.

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Acknowledgements

An earlier version of this paper was presented as the First CIMO (Centrum voor Innovasie en Maatschappelijk verandwoord Ondernemen) Entrepreneurship Lecture, Vrije Universiteit, Amsterdam, the Netherlands, 25 October 2007.

1   Introduction

What is the role of entrepreneurship in economic development? At a minimum, the answer should be able to explain the role of entrepreneurs in the structural transformation of countries from low income, primary-sector based societies into high-income service and technology based societies. More broadly though, it should also be able to explain the role of entrepreneurs in the opposite poles of stagnating development (including war/conflict) and in accelerating growth (including high innovation) situations. Over the past fifty years or so the world has experienced a wide diversity of development experiences, from successful economic structural transformations (such as in East Asia), mixed-success transformations (as in many countries of the former Soviet Union), rapid innovation episodes—sometimes accompanied by high growth (such as in Finland, India, Ireland, and the US to an extent), but also growth stagnation, collapse and persistent conflict (as in many African countries). Although economic development theory can still be argued to lack a 'general theory' of entrepreneurship, one that could encompass a variety of development outcomes, progress has been made in extending the notion and understanding of entrepreneurship in economic development. This paper surveys the progress from the perspective of the variety of economic development experiences, with the purpose of distilling the outlines for a more general theory of entrepreneurship in economic development. Despite the progress, entrepreneurship in economic development remains a relatively under-researched phenomenon.[1] Lingelbach et al. (2005:1) recently pointed out 'Entrepreneurship in developing countries is arguably the least studied significant economic and social phenomenon in the world today'. By surveying the current state of research, a secondary objective of this paper is to identify avenues for further research.

Over recent years policy makers have shown increasing interest in the role of entrepreneurship to generate economic growth and development. On one hand this has been stimulated by the rapid growth of the private sector in economies such as Brazil, China, India, and South Africa (described as 'southern engines of growth')[2] and on the other by realisation of the need for private sector strength in many fragile and failed states, such as Somalia, DR Congo, and others (Naudé 2007). Understanding development—or the lack thereof—and identifying suitable policies to foster development may require that the dynamics of entrepreneurship in these environments be better understood. It is however not only to developing countries that the growing interest in entrepreneurship as a catalyst for growth has been seen. In the US calls have been made for more support to entrepreneurs, which is seen as indispensable for the US

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[1] Shane (1997:86) reviewing 472 entrepreneurship papers published in 19 different international journals found that amongst the 13 most frequently published authors, all resided in advanced economies and their work dealt with advanced economy. In another extensive survey of the mainstream entrepreneurship literature Van Praag and Versloot (2007:3) confine their survey to the literature dealing with advanced economies, stating that the contribution of entrepreneurs to economic value-added is likely to differ in developing countries. If, how, and why this contribution differs remains a relatively unexplored research topic, which we hereby attempt to contribute to.

[2] In China the growth in entrepreneurship, as measured by self-employment, was 'explosive', not only in the richer coastal provinces, but also in rural areas, where the number of self-employed increased by more than 30 million between 1988 and 1995 (Mohapatra et al. 2007:163).

to regain a competitive lead in the world economy (see e.g. Schramm 2004; Baumol et al. 2007). In the EU, the Lisbon Declaration of March 2000 is explicit in identifying entrepreneurship as the key to the EU becoming the most competitive world region by 2010. Reviewing the linkages between entrepreneurship and economic development may thereof also be of interest to researchers and policy makers in advanced economies.

In developing countries the concern is with (entrepreneurship) starting and accelerating growth, and in providing impetus to the structural transformation of economies; in the advanced economies the concern is largely with obtaining new sources of productivity growth (which underlies competitiveness).

Given these practical concerns, an understanding of entrepreneurship in diverse contexts becomes important in order to know *if* and *how* entrepreneurs matter for economic growth and development, and *if* and *how* entrepreneurial capacity can be extended so as to further the economic dimensions of development.

This paper will proceed as follows. In section 2 the concept and definition of entrepreneurship is discussed. Section 3 describes the process of entrepreneurship, and the various theoretical and empirical contributions in the literature to the understanding of this process. In section 4, the implications of the process of entrepreneurship for economic development are drawn out. Section 5 discusses the policy implications. Section 6 concludes by summarizing and offering a few suggestions for further research.

2   The concept and definition of entrepreneurship

It is almost customary to start a paper on entrepreneurship by delineating the concept and discussing the way in which it can be measured. This is because of the number of different ways in which entrepreneurship can be approached: Wennekers and Thurik (1999:30) identify thirteen distinct roles of an entrepreneur.[3] One reason for the multiplicity of definitions/roles is due to the fact that entrepreneurship is studied 'in virtually all disciplines ranging from social anthropology to organizational theory to mathematical economics' (Henrekson 2007:717). Nevertheless, within economics the entrepreneur is most often approached from an *occupational* definition, a *behavioral* definition, or an *outcomes* definition.

The occupational definition sees entrepreneurs as the self-employed; based on the notion that a person can either be unemployed, self-employed, or in wage employment. It is measured either statically (through the number of self-employed)[4] or dynamically (through the rate of start-ups) (Wennekers and Thurik 1999). In the economic

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[3] According to Coyne and Leeson (2004:235) the diversity in approaches towards the nature of the entrepreneur has complicated the formal modelling of the entrepreneur in economics.

[4] The rate of self-employment differs significantly across countries. According to a sample based on 2001 data put together by Robson (2007:867) the highest rates of self-employment were in developing countries such as Sri Lanka (44.8 per cent), Indonesia (44.7 per cent), and Madagascar (43.7 per cent). In contrast, in developed countries the rate is much lower, for instance 6.8 per cent in Norway, 8.8 per cent in Denmark, and 8.9 per cent in France.

development literature this definition of entrepreneurship is perhaps encountered most often, due to many formally-registered unemployed who seek to eke out a living through informal self-employment in small and medium sized enterprises (SMEs) (Banerjee and Duflo 2007). Because many of these entrepreneurs are not in self-employment by choice but by necessity,[5] a distinction if often made in the measurement of entrepreneurship between necessity entrepreneurs, and opportunity entrepreneurs. The former is self-employed because of the lack of wage employment, while the latter is self-employed by choice, in order to exploit some perceived 'opportunity' (see the Global Entrepreneurship Monitor, GEM)[6]—or to overcome regulations or avoid taxes. This has been described as 'evasive' entrepreneurship (Henrekson 2007; Coyne and Leeson 2004). As a result the GEM has attempted to measure within the scope of 'opportunity' entrepreneurship what they term 'high potential' total entrepreneurial activity (TEA)[7] (Wong et al. 2005:341).

From a behavioural point of view, a number of definitions have described the entrepreneur according to perceived functions that are performed. Schumpeter's (1950; 1961) well-known view is of the entrepreneur as the coordinator of production and agent of change ('creative destruction'). As such the entrepreneur is an innovator. Kirzner (1973) described the entrepreneur not primarily as someone who initiates change, but who facilitates adjustment to change by spotting opportunities for profitable arbitrage. Knight (1921) emphasized the uncertainty attached to the exploitation of opportunities. According to Schultz (1975:843) the entrepreneur is anyone who can 'perceive an economic disequilibrium, evaluate its attributes ... and if it is found to be worthwhile to act, reallocate their resources'. Kanbur (1979:773) has the notion of the entrepreneur as one who 'manages the production function' by paying workers wages (which are more certain than profits) and shouldering the risks and uncertainties of production (see also Newman 2007:1). The way in which entrepreneurs discharge these functions would often, although not exclusively, be through the creation of a new firm, as defined by Hart (2003:5) who sees entrepreneurship essentially as the 'process of starting and continuing to expand new businesses'. Most new firms are small firms, so that a substantial part of the entrepreneurship literature is concerned with the dynamics of SMEs.[8]

It is implied, especially from Schultz's (1975) definition of entrepreneurship, that entrepreneurship need not result in creation of new firms. According to Hitt et al. (2001) entrepreneurship can be seen as part of the management function within existing firms.

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5   As pointed out by Glaeser (2007:1) the self-employment rate 'makes little distinction between Michael Bloomberg and a hot dog vendor outside of city hall'.

6   The GEM research program is an annual assessment of the national level of entrepreneurial activity. See http://www.gemconsortium.org/about.asp

7   GEM defines high potential TEA as a start-up that meets at least four requirements namely: (a) it plans to employ at least 20 workers within five years, (b) it has a positive market creation effect, (c) at least 25 per cent of its customers are abroad, and (d) it employs technology that were not available a year previously (Wong et al. 2005:345).

8   Indeed many policy-makers see small business promotion as synonymous with entrepreneurial support. Although small firms no doubt can be entrepreneurial, and may have advantages in the modern global economy (Audretsch and Thurik 2004), they are not necessarily, synonymous with entrepreneurship or entrepreneurial ventures (Wennekers and Thurik 1999:29).

In recent years the behavioural notion of entrepreneurship has been broadened to include the concepts of corporate entrepreneurship/strategic entrepreneurship and 'intrapreneurship', which has been defined as the 'pursuit of creative or new solutions to challenges confronting the firm' (Antoncic and Hisrich 2001:495) and various notions of non-market entrepreneurship (see the discussion in Acs and Kallas 2007:28-35). In this paper the focus will be on the role of entrepreneurs in creating new firms.[9]

Entrepreneurship can also be defined from the outcomes that different types of entrepreneurship can have on the economy. These definitions are based on the realisation that not all forms of entrepreneurship are good for economic development. Using data from 37 countries surveyed by the GEM in 2002 Wong et al. (2005:345) find that only high-potential entrepreneurial activity is positively associated with economic growth in their sample.

According to Baumol (1990:895) entrepreneurship can be productive, unproductive (e.g. rent-seeking), or even destructive (e.g. illegal activities). He defines entrepreneurs as 'persons who are ingenious and creative in finding ways that add to their own wealth, power, and prestige' (1990:987). Henrekson (2007:719) in a similar vein proposes that 'entrepreneurship can be seen as a continual quest for economic rents, i.e. rates of return exceeding the risk-adjusted market return'. He describes (2007:729) the sources of 'Ricardian' rents (and their short term equivalents of 'Marshallian' rents) such as access to natural resources, patents, and tacit knowledge, and points out that these rents can be obtained through many different means: from innovative activities to bribes. According to Coyne and Leeson (2004:236) this may imply that underdevelopment is not due to an insufficient supply of entrepreneurs, but due to a 'lack of profit opportunities tied to activities that yield economic growth'.

In this paper I will be referring back to these various definitions of the entrepreneur in first describing the process of entrepreneurship as seen through economic lenses (section 3) and then setting out what is known about the links between entrepreneurship and economic development (section 4). Section 5 contains policy implications.

3   The process of entrepreneurship

The process of entrepreneurship can be described as going through at least four phases,[10] the conception (when the would-be entrepreneur perceives an opportunity), the gestation phase (when the opportunity is evaluated), the infancy phase (when the firm is created), and the adolescence phase (where after the firm matures) (Reynolds 1993:14). In addition, the phase of firm closure (exit) has also been the subject of

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9 There is a related literature that asks the question, which factors influence the organizational form of the firm that is created. In this paper I am generally concerned, as is the bulk of the economics literature on this subject, with profit-maximizing firms. There are however, many 'entrepreneurs' that start as not-for-profit (NFP) firms. According to Parker (2007:698) these NFP-firms exist and survive because of legal limitations on the distribution of any profits to the owners, which raises confidence of investors in the entrepreneurs' motivations.

10 These phases correspond approximately to Shane and Venkataraman's (2000) description of entrepreneurship as consisting of the identification, evaluation, and exploitation of opportunities.

scrutiny, given the high rates of observed firm closures and inter-generational (family) firm changes. Each of these phases has generated its own theoretical and empirical insights. These will be discussed briefly, with implications for firm creation and growth in developing countries noted.

3.1 Conception and gestation

In what follows, the notion of entrepreneurial ability will stand out as a central determinant of the rate of start-ups and their success. Key entrepreneurial abilities are the alertness to perceive and act on opportunities (Licht 2007; Gaglio and Katz 2001) and the ability to function under uncertainty and risk (Kihlstrom and Laffont 1979). Much attention has been paid to these abilities in the psychology and management literatures. One pertinent finding is that persons who start their own firm are often overly-optimistic, suggesting that many become entrepreneurs despite a potential lack of objectively sound opportunities, or of being able to identify those opportunities correctly (Arabsheibani et al. 2000).

The conception phase of entrepreneurship is inhabited by latent entrepreneurs. These are persons who would prefer to be self-employed and who are considering seeking or are actively seeking the opportunity(Blanchflower et al. 2001:680).[11] In the OECD, about 25 per cent of the labour force has been found to be latent entrepreneurs (ibid.).

Various definitions of opportunities exist, for instance Shane and Venkataraman (2000) define an 'opportunity' as when goods can be sold at a profit. Following the definitions of entrepreneurs by Baumol (1990) and Henrekson (2007) as discussed in section 2, an opportunity need not only arise in the context of the creation of a firm or in the market place, but can entail any opportunity for an individual to advance his/her 'wealth, power or status'. McMullen et al. (2007:3) refer to the view that 'the subjective or socially constructed nature of opportunity makes it impossible to separate opportunity from the individual'. In what follows I will however argue that in order to make sense of the role of entrepreneurship in economic development, one has to allow for the existence of objectively independent opportunities to exist—and for differing abilities to perceive these opportunities, as well as for differences in abilities to assess and manage the various risk and uncertainty profiles attached to each opportunity. Thus, in certain contexts there will be different opportunities available to entrepreneurs, and not all of these opportunities are 'tied to activities that yield economic growth' (Coyne and Leeson 2004:236).

The psychological (individual-level) aspect that influences this ability has not been adequately researched in the context of developing countries. Two issues in particular have however been noted. The first is the apparent lack of interest by many poor people to seek opportunities. In a recent review of the behaviour of the extreme poor (those living on less than US$1 per day) Banerjee and Duflo (2007:165) are perplexed by the apparent lack of the poor to perceive opportunities, stating 'one senses a reluctance of poor people to commit themselves psychologically to a project of making more money'. This may, however, not only reflect a lack of psychological commitment, but also that

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[11] Once they are actively trying to start up a business, they are described as 'nascent' entrepreneurs (Robson 2007:865).

entrepreneurs have limited attention, and that in poor countries the environment is such that it attaches a very high cost for an individual to turn attention away from pressing matters in order to seek or perceive new opportunities—which may be scarce[12] (Gifford 1998:17). The second is that for households at subsistence level, assuming the high risk of trying to exploit opportunities which are subject to uncertainty may be unacceptable as the potential losses may outweigh the potential gains. Thus manager-owners, family businesses, and household enterprises often experience difficulty in innovating and adopting new technology.

3.2 Start-up and infancy

Economic theory has approached the decision of an individual to start-up a firm as an occupational choice between self-employment and wage-employment, following important contributions by amongst others Lucas (1978), Evans and Jovanovic (1989), and Murphy et al. (1991). The factors that affect this occupational choice depend broadly on an individual's entrepreneurial ability, the relative rates of return to entrepreneurship, as well as obstacles such as capital constraints and entry (start-up) costs, and factors that influence the opportunity costs of becoming self-employed.

3.2.1 Entrepreneurial ability

Entrepreneurial ability is a core element of occupational choice models (e.g. Lucas 1978;[13] Evans and Jovanovic 1989). As recognized by Kanniainen and Poutvaara (2007:676) 'people differ substantially in terms of their ability to produce a business idea, elaborate their idea, and make its way to a marketable product or service'. Entrepreneurial ability or characteristics have been the object of much study, with the focus on the risk-taking behaviour of entrepreneurs, their perception of opportunities (or 'disequilibrium'),[14] their need for achievement, their internal locus of control, and motivational goals (Licht 2007:818). Baptista et al. (2007) consider entrepreneurial ability to consist of human capital, social capital, and cognition. In Kihlstrom and Laffont (1979) entrepreneurial ability includes being less risk-averse and open to uncertainty. In the management literature the focus has been on the 'entrepreneurial ability' of firms, with various measures having been proposed in order to measure how 'entrepreneurial' firms are. Mezzour and Autio (2007), for instance, discuss the concepts of 'entrepreneurial orientation' and 'entrepreneurial management' according to which the entrepreneurial ability of a firm can be captured by its opportunity orientation, resource orientation, management flexibility, reward philosophy, growth ambitions, and entrepreneurial culture.

Åstebro and Bernhardt (2005) denote the concept of entrepreneurial ability by θ and see it is an important determinant of start-up rates. It has also been treated as an important determinant of firm survival (Cagetti and De Nardi 2005a; 2005b). Cagetti and De

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[12] As recently put by Majola (2008:1) 'the million dollar question is: How do you make money when people around you live in poverty? How do you make money when there is no money?'.

[13] Lucas (1978:511) uses the term 'manager', but equates it with 'entrepreneur'.

[14] Schultz (1975:834) sees entrepreneurial ability as the ability to perceive disequilibrium in markets and to reallocate resources to take advantage thereof.

Nardi (ibid.) and Fonseca et al. (2007:648) make a distinction between entrepreneurial ability (θ) and working ability (ε). The former they define as the capacity to 'invest capital productivity', and the latter as the capacity to 'produce income out of labour'. Thus an individual with high entrepreneurial ability might have even higher working ability, and will be less likely to enter into entrepreneurship (Fonseca et al. 2007:655).

3.2.2 Returns to entrepreneurship

With entrepreneurs essentially 'rent' seekers, the expected returns to being self-employed need to be weighed against the alternatives. These include wages from employment and social security (e.g. unemployment insurance and pension benefits). In simple terms, the occupational choice can be explained by explicitly incorporating entrepreneurial ability (θ) into the production function, as in Murphy et al. (1991: 508-9):

$$Q = A.\theta.F(L) - w.L \tag{1}$$

Where Q is output, A is a commonly available technology, $F(L)$ the relation between output and labour inputs, and w is the wage rate. Because each person has an entrepreneurial ability (some better than others), it can be shown, generalizing from Murphy et al. (1991:509) that a person will become an entrepreneur if profits and the non-pecuniary benefits from self-employment exceed wage income plus additional benefits from being in wage employment.

$$(A.\theta.F(L(A)) - w.L(A)) + \eta > w.L(A) + \mu \tag{2}$$

Where η denote the non-pecuniary benefits of entrepreneurship (following Blanchflower and Oswald 1998:30) and μ other diverse benefits from wage employment. Barriers such as start-up costs and capital requirements will influence whether an entrepreneur can proceed given (2). In sections 3.2.3 and 3.2.4 I discuss these barriers. One can also note that other regulatory aspects, such as taxes, can be included in (2). Gentry and Hubbard (2000:284) introduce taxes on profits (τ_s) and taxes on wages (τ_w) to show that relative tax rates may influence the start-up decision. However, empirical studies tend to find ambiguous results: some finding increases in taxation to raise the rate of self-employment and some the reverse (Henrekson 2007:733; Schuetze and Bruce 2004).

Because entrepreneurial ability determines the marginal production from capital and labour (as in equation 1) the size of the firm (proxied by the size L) will be determined by the extent to which the ability of the entrepreneur can be 'stretched' across greater number of employees (Fonseca et al. 2007:649). This is consistent with empirical evidence which finds that if entrepreneurial ability is (imperfectly) proxied by educational level and/or age, that the size of the firm the individual operates will be larger. Also the probability that the entrepreneur chooses to operate his or her firm in the formal (as opposed to the informal) sector of the economy will be higher (De Paula and Scheinkman 2007).

Equation (2) represents the key determinants of entrepreneurial start-ups. On the left hand side entrepreneurial ability (θ) has already been discussed. The left hand side of (2) also includes A, which is often assumed to be commonly available. However, this

may not be the case: imitation may be costly and $A.F(L)$ may be subject to uncertainty. Dixit (1989) has shown that with high uncertainty, as is the case in many developing countries, and if there are sunk costs in establishing a firm, then there will exist an option value for an entrepreneur to wait before entry. This would depress entry rates. Also, uncertainty may reduce the size of a firm (see section 3.2.1).

On the right hand side of (2) we have wages. Higher relative expected wages can be expected to lower the probability of an individual opting for self-employment. The expected wage is inversely related to the unemployment rate. Thus with higher unemployment is has been found that self-employment rise (Rissman 2003). Empirical research have noted a 'paradox' in that individuals often appear make the occupational choice in favour of self-employment when the monetary returns are less than they would have obtained if they had remained in or chosen wage employment (Hamilton 2000). Moskowitz and Vissing-Jorgensen (2002) offer a number of explanations, namely that these individuals have a high tolerance for risk, that they may misperceive risk, and are overly optimistic (see also Arabsheibani et al. 2000), or that there are large non-pecuniary benefits (η in equation 2) to being an entrepreneur.[15] Shorrocks (1988:241) proposed a model in which individuals are willing to earn less returns in entrepreneurship than they would have received in wage employment because being in self-employment allows them to gain experience and improve their entrepreneurial ability with a view to being able to eventually 'search for large prizes'.

Most of the subsequent literature in economics has tended however to focus on non-pecuniary benefits. For entrepreneurship these may include a preference for independency (autonomy) and a preference for variety (Moskowitz and Vissing-Jorgensen 2002:747; Licht 2007:825). Evidence for non-pecuniary benefits is presented by Taylor (1996), Blanchflower and Oswald (1998), and Blanchflower (2004), who show that the self-employed (entrepreneurs) at least in OECD countries have consistently higher rates of job satisfaction than wage-labourers. Bosma et al. (2005:40) point out that the value of non-pecuniary benefits will be larger in a society that has a good entrepreneurial 'culture'. This is a culture that can place a high value on independence, which allows for less conformity, is more tolerant towards inequalities in income and wealth, and where little or no stigma is attached to firm failure (Licht 2007:850). Giannetti and Simonov (2004:269) find evidence from Sweden that culture and social norms might create these non-pecuniary benefits: in their sample the likelihood of a person being an entrepreneur is higher where there are other entrepreneurs, even if the relative returns to entrepreneurship is lower.

Education has a theoretically ambiguous effect on start-ups, as it can influence both θ and w. Empirical studies confirm this ambiguity (Giannetti and Simonov 2004:273). It can reduce the probability of self-employment, and raise the probability of firm exit (see below) as it raises the wage rate that an individual can earn in formal employment. However, it can also impart skills needed to be an entrepreneur and improve entrepreneurial ability. In the latter regard Burke et al. (2000) and Lazear (2005) have found that the type of education may matter, arguing respectively that practical skills and a general/broad-based education (being 'jack-of-all-trades') is better for

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[15] In Polvoknichenko (2003) it is shown that non-pecuniary gains need not be substantial to encourage entry into entrepreneurship.

entrepreneurs rather than academic qualifications or a narrow specialization. Nafziger and Terrell (1996) argue that broader, practical skills, often the kind obtained through experience, may be important. They find from a study of Indian entrepreneurs that age, experience, and background can compensate for lack of education in start-up rates and the success of the firm. Baptista et al. (2007) find similar evidence from a longitudinal study of Portuguese firms. Goedhuys and Sleuwaegen (2000:141) find that in Côte D'Ivoire, formal education improves the 'learning capabilities of individuals' which improves their entrepreneurial ability.

Stam et al. (2007b:7) argues that the educational status of a person will have a positive effect on the entrepreneurial start-up rate, because the more highly educated will be able to more easily find employment if the start-up is unsuccessful. The potential positive role of education on start-ups through entrepreneurial ability is consistent with the theoretical and empirical suggestions that the likelihood of someone starting a new firm has an inverse U-shaped relationship with age: thus as a person gains more experience, his or her human capital and entrepreneurial ability improves. However, after a period, with higher age, learning becomes more difficult and entrepreneurial ability might decline again (Bönte et al. 2007)

Similar to the ambiguous influence of better education on the probability of becoming an entrepreneur, the literature has identified both positive and negative impacts of improved social security measures (included in μ in equation 2) on entrepreneurship. On the one hand, social security can be expected to lower the risk involved in starting a new business, and thus raise the rate of entrepreneurship from amongst risk-averse individuals. However, by raising the opportunity costs, it may lower the rate of entrepreneurship. Empirical evidence tends to favour the latter explanation. For instance Fonseca et al. (2007) find that the proportion of entrepreneurs in the age group 50 to 80 years differ significantly across EU countries and that it is much higher in countries with more limited pension benefits. Thus in France, where pension benefits are good, the rate of self-employment in this age group is 5.2 per cent, while for Italy where pension benefits are less good, it is 11.7 per cent (Fonseca et al. 2007:641).

Finally the returns from being self-employed may depend on the way in which the entrepreneur enters the market, either through creation of new firm or by purchasing an existing firm. The latter option may be more profitable, if failures in the market for second-hand firms can be overcome. As in the case of second-hand vehicles (see Akerlof's 1970 classic contribution) these market failures are largely due to information mismatches. Kanniainen and Poutvaara (2007:685-6) identify three such informational mismatches: (a) matching entrepreneurs who wish to sell their firms with potential buyers, (b) evaluating the tacit knowledge in an existing firm and how to transmit this to the potential new owner, and (c) entrepreneurs who want to sell their firm may attach emotional value to their firm causing them to either overprice or under-price the firm. The implication is that if these informational failures can be overcome, the rate of entry into entrepreneurship, through purchasing existing firms, will be higher.

3.2.3   Start-up costs and regulations

Start-up costs and regulations refer to the effort required to begin a firm. It differs in duration and content from country to country, but generally include aspects such as the cost, number of procedures and time it takes to obtain a permit to operate a business,

the costs of setting up a business, which often includes a fixed cost/sunk cost element, and the regulations that needs to be adhered to in terms of labour and production and organisation standards (Fonseca et al. 2001). The motivation for positive entry costs and regulation are to protect the public and workers from potential fraud and exploitation by unscrupulous agents (Fonseca et al. 2007), to 'weed out' low quality entrepreneurs (Parker 2007:703), and to improve tax collection on firm income (Klapper et al. 2006:593). Djankov et al. (2002) found evidence that higher entry costs and more regulation are associated with higher levels of corruption, suggesting that entry costs and regulations may also be imposed by rent-seeking officials—with the implication that entry costs and regulation may not keep out unscrupulous agents in countries with high levels of corruption (Klapper et al. 2006:622). Parker (2007:707) speculates that incumbent entrepreneurs may drive an increase in the regulation of business entry that has been observed in many countries, as a way of creating barriers to entry for new firms. Djankov et al. (2002) found that in countries with high entry costs and regulations the size of the informal economy (unregulated self-employment) is higher, indicating the existence of 'evasive' entrepreneurship.

Empirical evidence (coming from developed countries) concurs that entry costs and regulations—especially labour market regulations—tend to lower the start-up rate of new firms (e.g. Fonseca et al. 2001; Desai et al. 2003; Klapper et al. 2006).[16] Klapper et al. (ibid.), using data from a sample of EU countries, finds that entry costs and regulations tend to keep out smaller firms, and contributes to lower productivity from incumbent firms through lowering rates of competition from new firms. The fact that the gap between latent and actual entrepreneurship varies across countries is seen as being attributable to differences in entry costs and regulations, and access to start-up capital, between these countries (see e.g. Blanchflower et al. 2001).

Fonseca et al. (2001) finds evidence from OECD countries that start-up costs hinder entrepreneurial entry and result in lower employment. They set out a theoretical model to explain this. In this model, entrepreneurial ability (θ) is equated with the number of jobs that an entrepreneur can create. If each job that the entrepreneur creates generates a surplus of P, then the total expected profits for an entrepreneur of ability θ is θP. Individuals must make an occupational choice between being an entrepreneur (which earns θP) or being in wage-employment (which earns W). However, to become an entrepreneur requires start-up costs of K. Given these choices, Fonseca et al. (2001:696) show that an individual will become an entrepreneur only if $\theta P - K \geq W$. This implies that $\theta \geq (W + K) / P$, which can be interpreted as a 'reservation' entrepreneurial ability (θ_R) below which an individual will prefer wage employment. To model the impact of start-up costs on employment, they introduce the features of a search equilibrium model, so that not all jobs (P) are filled by workers (there are vacancies, denoted by V) and that not all workers can find a job (there is unemployment, denoted by U). Labour market 'tightness' can be measured by the number of vacancies per unemployed person (ω), i.e. $\omega = V / U$ (2001:695). The relationship between ω and θ_R will determine the equilibrium rate of unemployment and the number of entrepreneurs. This can be depicted with the help of Figure 1, adapted from Fonseca et al. (2001:697).

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[16] Van Stel et al. (2007) finds empirical evidence from a sample of 39 developed countries that capital costs and labour regulations matter for start-ups, but not the time, costs, or number of procedures needed to start a firm.

Figure 1: The impact of start-up costs on the rate of entrepreneurship and unemployment
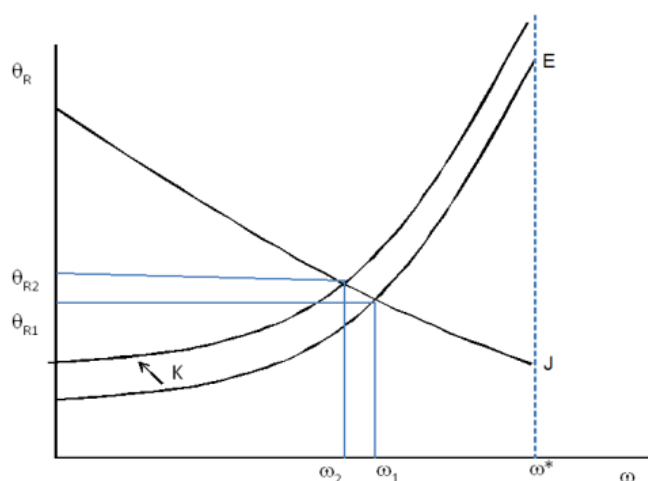
Source: Fonseca et al. (2001:697)

In Figure 1 the upward sloping *E*-curve denotes a rate of entrepreneurship consistent with various combinations of labour market tightness and entrepreneurial reservation ability. It is upward sloping because as ω increases (relative more vacancies), the threshold entrepreneurial ability required will increase (as more jobs need to be created). The downward sloping *J*-curve denoted the rate of job creation consistent with various combinations of labour market tightness and entrepreneurial reservation ability. This indicates that as the required reservation level of entrepreneurial ability increases, unemployment will increase so that there will be fewer vacancies per unemployed. The equilibrium entrepreneurial ability rate is shown as θ_{R1} in the figure. Fonseca et al. (2001:699) show that the introduction of start-up costs (*K*) will shift the *E*-curve outwards, so that there is now less vacancies per unemployed. Unemployment is higher because there are less individuals in entrepreneurship (where there is no unemployment) and fewer workers find a job. Thus start-up costs results in both fewer entrepreneurs and higher unemployment.

The Fonseca et al. (2001) model and empirical results pertain to a developed country setting where there is less evasive or unproductive entrepreneurship. Often, labour market regulations, including union behaviour that for instance make dismissal of workers more difficult and raise minimum wages (e.g. *W* in the above model), have been argued to stimulate self-employment, as evasive entrepreneurship—but to reduce productive entrepreneurship by raising opportunity costs of entrepreneurship as well as the fixed/sunk costs to entry (Kanniainen and Poutvaara 2007:676; Henrekson 2007: 737). They have also been argued to be particularly detrimental to small firms, where such regulations may limit the effective allocation of labour. This is because unlike in larger firms, smaller firms cannot easily match workers with heterogeneous abilities to tasks best suited to them within the firm (Henrekson 2007:737).

3.2.4 *Access to capital*

Access to capital depends, among other things, on the wealth holdings of a prospective entrepreneur. It is generally observed that entrepreneurs tend to hold more wealth than wage-labourers. For instance in the USA entrepreneurs hold a disproportionate amount

of wealth: Cagetti and De Nardi (2006:839) report that while entrepreneurs comprised 7.6 per cent of the population in 1989, they owned 33 per cent of total wealth. Also, 81 per cent of those in the top 1 per cent of the wealth distribution were entrepreneurs. Hurst and Lusardi (2006:3) report that the median wealth of households owning a business is three times higher than those not owning a business.

The observation that entrepreneurs are wealthier than wage-earners has been taken as evidence of capital constraints on start-ups. The argument is that under constrained capital markets, individual wealth (including inheritances, bequests, and lottery winnings), and informal credit markets will be a determinant of the start-up rate. Following Stiglitz and Weiss (1981) it has been realized that capital markets could provide inadequate finance to entrepreneurs due to moral hazard and limited liability problems (Paulson et al. 2006:102).[17] The key initial insight in the context of start-ups have been formalized by Evans and Jovanovic (1989). In their model, the significance of wealth as a determinant of start-ups is interpreted to signify that potential entrepreneurs are credit-constrained.

A number of subsequent models have qualified and modified this result. Banerjee and Newman (1993) model the role of individual wealth within the occupational choice between entrepreneurship and wage employment. This has macroeconomic implications for a country's wealth distribution and overall start-up rate—as was mentioned, entrepreneurs tend to be disproportionately wealthy. According to Mesnard and Ravallion (2005:3) 'greater wealth equality implies that fewer potential entrepreneurs are able to finance start-up capital'. A number of extensions modify this result to find that inheritances (bequests), household savings, and even lottery windfalls are associated with a higher probability that an individual will be self-employed (Blanchflower and Oswald 1998; Dunn and Holtz-Eakin 2000; Gentry and Hubbard 2000; Lindh and Ohlsson 1996). Again this assumes that the significance of wealth may indicate that potential entrepreneurs are credit-constrained. Cagetti and De Nardi (2005a; 2005b) construct a dynamic occupation choice model that shows with credit constraints the distribution of wealth determines the amount of investment in the economy, the rate of start-ups, and the size distribution of firms. Relaxing credit constraints raises the start-up rate, leads to increases in the average size of firms, and reduces wealth inequalities. This indirectly offers a channel for start-ups to affect economic growth, since it implies that restrictions on occupation choice (for entrepreneurship) will reduce investment and raise inequalities (which may or may not be good for economic growth).

The impact of wealth inequality on entrepreneurial occupational choice may depend on start-up costs (Mesnard and Ravallion 2005). When start-up costs are high, wealth inequalities increase the rate of start-ups, and conversely with low start-up costs wealth inequalities reduce the rate of start-ups. With start-up costs, the relationship between wealth and start-ups are weakened because start-up costs depress the marginal value of being an entrepreneur as a function of wealth (Fonseca et al. 2007). The significance of

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[17] Limited liability refers to bank requirements that an entrepreneur provide collateral to obtain a loan so as to limit their exposure in the case of default. Moral hazard occurs because banks cannot observe entrepreneurial ability and effort and if the entrepreneurs do not have their own wealth invested in the firm, might have less incentive to scale up their effort in the running of the firm (Paulson et al. 2006:102).

start-up costs creates a clear link between the first and second transition phases in the establishment of a firm, as it implies that the start-up process itself will influence the initial occupational-choice decision.[18]

Not all models and empirical evidence attach the same importance to wealth in the occupational choice and start-up decision, and even where the effects of wealth on start-ups are not in question, the interpretation that this imply constraints in the credit market has been doubted. Hurst and Lusardi (2004:319) for instance construct a model and find empirical evidence showing that most wealth distribution has little significant impact on the start-up rate, and only has a significant positive impact after the 95th percentile. They are also critical of the view that the empirical finding in earlier literature whereby wealth is a significant predictor of start-ups reflects credit market constraints, recognizing that wealth itself may be endogenous (a point also stressed by Blanchflower and Oswald 1998:27). Proxies for wealth such as inheritances may be flawed given that inheritances might be more likely in families with characteristics that are favourable towards entrepreneurship (e.g. entrepreneurial ability) (Hurst and Lusardi 2004:336). Fonseca et al. (2007) present an occupational choice model where the existence of start-up costs 'flatten' the relationship between wealth and the probability of someone starting a new firm. Thus in countries with similar wealth levels, differences in start-up costs would result in different start-up rates.

The role of wealth in entrepreneurial occupational choices is not only confined to overcoming imperfections in credit markets. Newman (2007:2) argues that wealth will be a determinant of entrepreneurship, due to the need for wealthier individuals to assume more risk, so as to earn more income, to achieve similar utility from income as less wealthy persons.

Finally, the significance of credit as a constraint on start-ups can be shown to depend on the relative productivity of human capital in wage work and self-employment. Åstebro and Bernhardt (2005:71) find that entrepreneurs with high human capital (as proxied by education and experience) have greater financial wealth and more start-up capital, implying that human capital may reduce the frictions caused by lack of credit.

3.2 Growth, survival, and exit

Research on the final phases of firm creation has focused on the determinants of existing firm growth and firm size, and research on the survival and failure (or exit) of firms. Influential contributions in this literature include Lucas (1978), Jovanovic (1982), Hopenhayn (1992), Jovanovic and MacDonald (1994), and Ericson and Pakes (1995). In this section I discuss these and other contributions with reference to firm growth and size (3.2.1), firm exit (3.2.3), and serial entrepreneurs (3.2.4).

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[18] The relationship between start-up costs, wealth inequality and start-ups has implications for economic growth and development. It suggest that in a developing country context where start-up costs are low, a small outward shift in the wealth distribution may have a substantial positive impact on the number of start-ups (Rapoport 2002:1).

3.2.1 Firm growth and size

According to Desai et al. (2003:6) research on firm growth and size has been concerned to determine if firm growth is independent of firm size ('Gibrat's Law'), and has generally found that smaller firms tend to grow faster (2003:7). It is also the case that smaller firms have 'higher and more variable growth rates' (Jovanovic 1982:649).

Lucas (1978) shows that the growth in firm size is a result of the growth in the ratio of entrepreneurs to workers: as the economy grows and wages rise, entrepreneurs with less ability will exit and become wage-labourers, while entrepreneurs will higher ability (and 'control spans') will face relative better incentives to manage larger firms. Similarly, Murphy et al. (1991) show that firm size is related to entrepreneurial 'talent' so that more talented entrepreneurs end up with larger firms. Cabral and Mata (2003:1082) find empirical evidence for this from Portugal.

Cabral and Mata (2003:1079) linked firm size and growth to financial constraints faced by the firms. They argue that if young entrepreneurs are more subject to financial constraints, the size-distribution of a given cohort of new firms would be right-skewed. Indeed, from a sample of Portuguese firms they find that a firm owned by a young entrepreneur would be 30 per cent smaller than a firm owned by an older entrepreneur (2003:1082). Over time, as some of these firms overcome financial constraints, they will grow in size and the size-distribution will become more symmetrical.

The question that arises is why do we see so many small and even micro-firms in the least developed countries? According to the occupational choice models discussed above this may be due to a large number of firms started by individuals with little entrepreneurial ability, who would have preferred to be in wage-employment. Indeed firm size in Africa has been found to be positively related to the educational and skill levels of the entrepreneur (Ndulu et al. 2007:68). Small firm size may also be a symptom of economy-wide uncertainty, where the probability of success is small (Wiggens 1995). Such conditions characterize many developing countries. Wiggens (1995) shows that under such conditions large firms face greater costs to provide sufficient incentives to retain committed workers: they may be successful, but they cannot commit to high wages beforehand as this would imply a large cost if they fail. In contrast, a small firm can allow the entrepreneur to earn potentially large returns if the firm is successful, while if the firm is unsuccessful no large commitments (costs) are incurred. This argument is also offered as an explanation for the use of franchises, where larger firms offer a franchise where an individual's reward is determined by profits rather that a fixed wage as employee (Wiggens 1995:68).

Small firm size may also be a symptom of personal management/family ownership of firms, which without the right environment could reduce growth. This is because in many such firms the objective is to maintain the entrepreneur's lifestyle, be it survivalist or merely to ensure sufficient cash flow (Teece 1993:208). Small firms may also be a symptom of the fact that firms cannot exploit economies of scale of scope—not only due to liquidity constraints but because of a lack of transport infrastructure and transport services (Tirole 1988; Acs 2006; Banerjee and Duflo 2007). The preponderance of small firms in some developing countries may be due to path-dependence and that other countries exploited a first-mover advantage in the exploitation of technologies, providing for large scale production (Chandler 1990).

3.2.2 Firm exit

Not all start-ups last long. In fact the exit rate of new firms (or rate of firm turnover) is high in all countries where it has been studied. For instance Hopenhayn (1992:1127) notes that in the US about 40 per cent of manufacturing firms exit within five years. Cressy (2006:103) declares that 'most firms die young', citing the finding that a significant proportion (50 per cent) of firms exit the market after only 18 to 24 months. Abbring and Campbell (2003) argue that the entrepreneur's option to exit the market is in itself a value, and calculate based on a sample of firms from the US that most of the value of new firms may be due to this option. Sunk costs also have an influence on the decision of *when* to exit: they find that exit rates immediately after entry are low, but rise during the year with most exits occurring at the end of a year before fixed costs (such as annual rents) have to be paid. This echoes Dixit's (1989) finding that the existence of sunk costs will result in a degree of hysteresis in a firm's participation in the market.

That entrepreneurs exit from self-employment does not necessary mean that they have been unsuccessful (Andersson 2006:31). Most firm exits have been found to be voluntary (up to 80 per cent) and not necessarily due to firm failure (Taylor 1999: C140; Cressy 2006:114). There are various reasons for people exiting from self-employment, which may include business failure (Jovanovic 1982), increases in the opportunity costs of being self-employed such as increases in wages (Andersson 2006), and retirement, which may result in a firm being transferred to a new generation (Kanniainen and Poutvaara 2007). Thus firms may be discontinued (e.g. through voluntary closure or liquidation) or sold on the market, or passed on to family members. This has generated a literature on the market for firms, on the factors that determine when entrepreneurial entry would take the form of the purchase of an existing firm rather than the creation of a new firm, and on family firms (Bertrand and Schoar 2006).

According to Kanbur (1979) and Jovanovic (1982), new entrepreneurs are at first not aware of the extent of their entrepreneurial ability, and as they perform in self-employment they are able to form a clearer view, according to which they may continue their firm, or exit. In a similar manner Ericson and Pakes (1995:55) state that entrepreneurs make recognize potentially profitable opportunities, but must invest in order to 'learn the value of the opportunity'. Once they have determined that the returns to their investment are smaller than the opportunity costs, they will exit. In these cases the exit decision by the firm is a rational decision. Reynolds (1993:16-17) notes that 'a dramatic drop in the risk of discontinuance occurs after about four to five years'. This would suggest that entrepreneurial self-assessment takes places within three to four years at most. Self-assessment of ability after a period may also account for the firms of younger entrepreneurs having higher exit rates (Taylor 1999), because younger entrepreneurs tend to be less risk-averse, and as such take on more risky activities, which they do not however have the entrepreneurial ability to manage (Cressy 2006:103).

Gartner (1985) sees firm survival during these initial years as dependent on entrepreneurial ability to differentiate his or her products from those of competitors. Cressy (2006) sees it as dependent on the ability of entrepreneurs to reduce the uncertainty that they face, e.g. through diversification. Gimeno et al. (1997) show that firm survival depends not only on realized profits but on thresholds of accepted firm performance. This can be firm-specific depending on the assets, mobility, and

characteristics of the firm's owners including the non-pecuniary benefits of self-employment.

A second category of reasons for firm or entrepreneurial discontinuity is due to changes in the opportunity costs of being an entrepreneur: either entrepreneurship becomes less attractive or wage-employment (or unemployment) becomes more attractive (Andersson 2006:4). Some of these factors may be outside of the control of the entrepreneur, in other words, it may be due to 'bad luck' (Cressy 2006:114). Both adverse as well as positive changes in economic growth/market demand will affect entrepreneurial exit. For instance adverse changes in economic growth/market demand may result in profits falling below the acceptable threshold and cause the entrepreneur to exit (a 'push' factor) (Andersson 2006). This implies that situations of economic stagnation will not only be a cause of higher self-employment due to necessity entrepreneurship, but also higher rates of firm failure (Bosma et al. 2005:35).

Although general economic stagnation on a macroeconomic level can lead to firms exiting due to falling profit levels, there may also be changes on an industry level that could lead to firms exiting a particular industry, even if macroeconomic conditions are good. In this regard Jovanovic and MacDonald (1994) derive a model that shows how industry-level dynamics can drive firm growth and exit. They imagine an industry that starts out with a small number of firms, who face high prices (and profits). This will encourage new firm entry, so the total number of firms as well as output in the industry will rise. As the number of firms rises, competition will increase, and firms will increasingly innovate (and raise the effectiveness of A in equation 1) to improve their competitiveness. This increase in the rates of competition innovation will make it progressively more difficult for new firms to enter, will increase the optimal scale of the firm's production, and will put pressure on less efficient firms (the 'technological laggards') to exit (1994:324). With prices falling at the same time, the rate of output growth will slow down, to a level where a greater number of firms will exit. This model is therefore offered to explain the frequent industry 'shake-outs' that have been observed as particular industries emerge and mature. Holmes and Schmitz (1990) in an earlier model suggested a similar motivation for firm exit, where old firms need to close down to free resources to form new firms that can embody new technologies.

In contrast to adverse macroeconomic circumstance or industry-level shake-outs, improvements in macroeconomic conditions may have both positive and negative effects on the rate of self-employment. On the one hand, it may send a signal of potentially good returns to innovation for high-ability entrepreneurs, leading them to enter and remain in the market. On the other hand the higher accompanying wages will lead to entrepreneurs with relative better ability as workers, to opt for wage-employment instead. Often, the better education entrepreneurs can earn higher wages so that they are among the first to exit. Nafziger and Terrell (1996:695) point out that formal education often does not contribute to entrepreneurial ability, as they found in a sample from India that new firms established by formally well-educated entrepreneurs are less likely to survive because they face better opportunities in wage-employment and rent-seeking.

A third category of motivations for entrepreneurial exit concerns the retirement of the entrepreneur. In this case a successful firm will either be discontinued, sold on the

market to another entrepreneur, or passed on to a new generation—stays within the family.[19] Kannianen and Poutvaara (2007) model the inter-generational dynamics of entrepreneurs using an overlapping generation model. They show that informational failures exist in the market for firms, and that this will result in a tendency for high-quality firms to be more often transferred within a family than sold to external entrepreneurs. This might however limit entrepreneurial entry as well as lower the average ability of the entrepreneurial pool in an economy as the efficiency of the transfer of tacit knowledge from an entrepreneur to family members will depend on their talent (Kannianen and Poutvaara 2007:692). Given that these informational failures tend to be more prevalent in poor and developing countries, one could expect a predominance of (less efficient) family-owned firms in these countries. Parker (2007: 699) also suggests a predominance of family firms in countries where property rights and legal protection for investors are weak, since keeping the firm within the family may reduce 'costly monitoring' of outside entrepreneurs (see also Bertrand and Schoar 2006).

3.2.3 Starting again

Once an entrepreneur has discontinued a firm and exited from being self-employed, it is often observed that he or she will start a new firm. This has been termed 'renascent' entrepreneurship (Stam et al. 2007a) or 'habitual' entrepreneurship, which include 'serial' entrepreneurs, and 'portfolio' entrepreneurs (Ucbasaran et al. 2006:4-5).[20] A significant portion of existing entrepreneurs at any point in time are habitual entrepreneurs. Holmes and Schmitz (1990:269) argue that they make a particular contribution to economic development by facilitating the division of labour.

Stam et al. (2007a) investigate the extent and determinants of renascent entrepreneurs, and ask why a person should become an entrepreneur again after having failed the first time. This is because firm failure could indicate that a person does not have sufficient entrepreneurial ability. Their answer is that entrepreneurial ability is not a fixed quality, but can be developed if learning takes place. Then whether or not a person would start a new firm after having failed the first time, will depend on his or her capacity to learn from experience (Stam et al. 2007a:4). That this could be important is suggested by the findings of Baptista et al. (2007) that firms started by habitual entrepreneurs have a higher probability of survival.

Habitual entrepreneurs have also been found to be significantly motivated by non-pecuniary benefits of entrepreneurship, such as a desire for independence (Wright et al. 1997; Ucbasaran et al. 2006). Holmes and Schmitz (1990) model habitual entrepreneurs as following from the 'occupational' decision of certain individuals to specialize in entrepreneurship: their investments in new firms are essentially investments in their own entrepreneurial ability. Giannetti and Simonov (2004:279) emphasize the

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[19] Bertrand and Schoar (2006) provide a survey of the recent research into family businesses, in particularly discussing efficiency-based and cultural theories of family businesses.

[20] Serial entrepreneurs are defined as 'individuals who have sold or closed at least one business … and currently have a minority or majority ownership stake in a single independent business', and portfolio entrepreneurs are defined as 'individuals who currently have minority or majority ownership stakes in two or more independent businesses' (Ucbasaran et al. 2006:5).

importance of social norms in an entrepreneurs decision to start (and re-start) a firm, as these will determine whether or not there is a stigma attached to failure.

Habitual entrepreneurs seem to make up a significant proportion of the self-employed in developed countries, and one may expect the same to be the case in developing countries. There is however a gap in the literature on the extent and motivations of serial entrepreneurship in developing countries.

4   Entrepreneurship in economic development

Economic development is the process of structural transformation of an economy towards a modern, technologically advanced economy based on services and manufacturing. This process involves not only qualitative changes to the nature of an economy, but also accompanying quantitative changes in terms of the productivity and output per person. If these qualitative and quantitative changes result in unambiguous improvements in human welfare, it is generally seen as economic 'development'. In both the qualitative as well as the quantitative dimensions of economic development entrepreneurship could make a positive contribution to economic development. In the popular press entrepreneurship is depicted as important for economic development; seen to create jobs, ease fiscal burden, and provides competition.

Entrepreneurship could also, of course, as was implied in section 2, have a negative impact on economic development. In this section I will first discuss the positive role of entrepreneurship in economic development, specifically focusing on structural economic change and growth acceleration (section 4.1), and thereafter (section 4.2) exploring ways in which entrepreneurship may undermine economic development. Section 4.3 contains empirical evidence and reconciles this with the theory in sections 4.1 and 4.2.

4.1 Structural economic transformation, innovation-driven growth, and entrepreneurship

High economic growth and rising per capita income are relatively recent phenomena in human evolutionary history. Human society has on the whole, lived in a traditional, subsistence state. Hansen and Prescott (2002) distinguish between the pre-industrial era (termed 'Malthusian') and the post-industrial era (called the 'Solow', or 'era of modern growth'). They argue that the transition from the Malthusian (subsistence) era to the Solow era is characterized by a change in technology based on land, to a technology based on physical and human capital accumulation. The adoption of new technology first and foremost required specialization, which in turn required a sufficiently large market (Goodfriend and McDermott 1995:117). Once population growth and urbanization offered larger markets, as well as the conditions for reaping economies of scale, and people started investing in the quality of their offspring rather than the quantity (Galor and Moav 2001; 2002), economic growth took off. This process has recently been formalized in 'unified growth models that are consistent with an epoch of Malthusian stagnation and the transition from Malthusian stagnation to sustained growth' (Galor and Moav 2001:720). Once this take-off started, economic development entailed a transformation from the traditional sector, to the modern sector, as is

formalized in dual economy models following Lewis (1954) and Ranis and Fei (1961). Understanding the role of the entrepreneur in economic development and growth therefore entails an understanding of the role that the entrepreneur played in the Malthusian era, in the transition from Malthusian stagnation to growth, in transforming the economy structurally from a traditional, agricultural based economy to a modern industrial economy, and finally in sustaining growth based on innovation (knowledge capital). According to Murphy et al. (2006:12) it was the 'advent of entrepreneurship' that allowed per capita income to grow exponentially in the West from the 1700s.

It can be argued that during the Malthusian era the problem was one of low levels of entrepreneurial ability and fewer opportunities whose exploitation would have resulted in economic growth. Over time however, growing population density—as a result of growing urbanization[21]—and basic technological progress in agriculture and transport, created large enough agglomerations where opportunities started to arise.[22] Specialization created learning and innovation and made the adoption and the spread of new technology much faster (Goodfriend and McDermott 1995:117). Another benefit included incentives for investing in entrepreneurial capital (e.g. through serial start-ups) It also provided incentives for investment in human capital, which facilitated the switch in a parental (household) strategy of quality rather than quantity of offspring (described in Galor and Moav 2002).

There are two ways in which this switch would have made possible a significant increase in entrepreneurial ability and effectiveness during this transformation (Cagetti and De Nardi 2005:21). First, parents transfer human capital, in particular tacit knowledge, to their children. For entrepreneurship this may be an important source of entrepreneurial ability, as it is often found that children of entrepreneurs are more likely to become entrepreneurs themselves (Davidsson and Honig 2005; Stam et al. 2007a). Second, parents transfer capital to their children (e.g. through inheritance), which provides them with the capital base needed to support their entrepreneurial ventures.

The 'take-off' from Malthusian stagnation to growth as depicted in unified growth models, can be argued to correspond to the start of modern sector growth in dual economy models in development economics. These dual economy models aim to explain the structural transformation of underdeveloped economies, and are inspired by seminal contributions of Lewis (1954)[23] and Ranis and Fei (1961).

In these dual economy models, economic transformation involves the co-existence, at least for a period, of a traditional (often described as the agricultural, informal, or subsistence) sector and a modern (based on services and manufacturing) sector, and the movement of labour from the traditional to the modern sector. Labour flow out of the traditional sector to the modern sector due to the latter's higher productivity (and

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[21] Duranton and Puga (2001) argues that cities act as 'nurseries' for firm creation and growth, finding evidence that new firm start-ups are proportionately higher in cities.

[22] Maddison (1982) noted a dramatic acceleration in European growth after 1700, as compared to the previous period. These were accompanied by significant growth in population and urbanization (Goodfriend and McDermott, 1995:117).

[23] According to Kirkpatrick and Barrientos (2004:2) the Lewis model 'is widely regarded as the single most influential contribution to the establishment of development economics as an academic discipline'.

wages)—underpinned by the Lewis assumption that labour's marginal productivity in the traditional sector is zero. If the traditional sector is equated with the agricultural/ rural sector, then this outflow results in the contribution of agriculture to total GDP to decline, the share of the population living in urban areas to increase, and average per capita incomes to rise. Growth is due to higher productivity in the modern sector and an increase in aggregate demand due to higher wages that are paid in the modern sector (Rada 2007:713). This transformation can also be consistent with an inverse-U relationship between per capita income and income inequality, as observed by Kuznets (1955).[24] A number of extensions were made to address some of the simplifying assumptions of the Lewis model. The popularity of dual economy models in development economics therefore lies in their ability to explain a number of stylized facts of international development over the past century.

Where is the entrepreneur in these dual economy models? Although Lewis did not use the term 'entrepreneur', he very much had the entrepreneur in mind in the modern sector agents described as 'capitalists'. These agents, to be contrasted from workers who get paid a wage according to their marginal productivity, share in the surplus production in the modern sector. Moreover, in the Lewis model the assumption is that these capitalists (entrepreneurs) have much higher savings rates than workers, and that they re-invest their surpluses in expanding the modern sector.[25] For Lewis (1954:155) a rise in total savings in an economy is a prerequisite for economic development. In theory, three reasons have been noted for entrepreneurs' higher propensity to save: one, to accumulate enough capital to start or expand a business in the presence of credit market failures (see section 3.3); two, to reduce the need for expensive borrowing and; three, as a precaution given that entrepreneurship carries more risk than wage employment (Cagetti and De Nardi 2005:18). As long as there are 'unlimited supplies of labour' the wages in the modern sector will remain constant, allowing capitalists to reap and reinvest their surpluses. A weakness in these traditional dual economy models (see also Bourguignon 1990) is that although there are 'capitalists', it is assumed that they are exogenously given as a constant proportion of the population, so that none of the concerns in occupational choice models arises.

Dias and McDermott (2006) provide a model in which entrepreneurs in the modern sector provide an environment where human capital accumulation can take place, provided that the institutional framework is conducive. They combine a dual economy model with an occupational choice model wherein people are born either as workers, or as managers. Workers can choose to work in the traditional sector, or they can migrate to the modern sector. For the latter a minimum level of human capital is needed. Managers, all of whom are in the modern sector, can choose between being productive entrepreneurs or to be rent-seekers. For the former they would need to cover start-up

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[24] Bourguignon (1990:215) points out that in dual economy models, inequality will be low (zero) when all the workers are in the traditional sector, highest when the population is split between the two, and zero again when all the workers are in the modern sector. This assumes that there is no inequality within the modern sector between capitalists and workers, which is contrary to empirical evidence that points to significant differences in income and wealth between workers and capitalists (entrepreneurs).

[25] Quadrini (1999; 2000) finds that entrepreneurs have much higher savings rates than workers. Henrekson (2007:733) argues that the impact of savings on the start-up rate may depend on the form that savings take. If saving schemes restrict the owners' control of their savings it may be of limited use as funds or collateral to start up a firm.

costs, and pay taxes. Their model shows that the better entrepreneurial ability are, the more workers will migrate to the modern sector, and the higher will be the overall levels of human capital accumulation in the economy. They support their model's implications with panel data from Brazilian states.

Unlimited supplies of labour will of course not provide surpluses (profits) indefinitely, and as the stock of capital increases as a result of investment by entrepreneurs, its marginal product could start to decline. Thus, other sources of productivity growth are required to sustain and accelerate economic growth in the modern sector once the structural transformation has crossed a particular threshold. Peretto (1999) provides a modified endogenous growth model that implies long-run structural transformation depends on the degree to which an economy can make a transition from a growth path driven by capital accumulation ('the Solow economy' as happens during the period of labour surplus when capitalists invest their surplus profits in the Lewis model) to a growth path driven by knowledge accumulation (the endogenous growth or 'innovation-driven' economy). Knowledge accumulation (including technological innovation) is recognized to be easier in certain activities (such as in manufacturing and services) and contexts—such as in urban agglomerations.

Three interrelated sources of productivity growth that determines how an economy makes the transition from capital-accumulation to knowledge are the allocation of talent (e.g. Murphy et al. 1991), the accumulation of human capital (e.g. Peretto 1999), and technological progress (Ciccone and Matsuyama 1996).

Murphy et al (1991) emphasize 'entrepreneurial talent' (ability) and show that firm size and the growth of the economy is determined by entrepreneurial ability. They suggest it is important that most talent become entrepreneurs (1991:510). Nelson and Pack (1999) use a dual economy model to explain the structural transformation of economies such as Korea and Taiwan from being characterized by a 'craft' sector to a 'modern' economy. They assign a key role to the 'effectiveness of entrepreneurship' (or entrepreneurial ability, which they denote by e), which they see as a vital determinant of the rate of assimilation of technology (1999:420). They stress the imitative role of entrepreneurship as well as its role in taking on uncertainty, given that the adoption of (mostly) foreign technology by entrepreneurs in these countries entails significant risk-taking (1999:418). As in Rada (2007), entrepreneurs 'trigger' an investment in the modern sector once they have perceived profitable opportunities (the 'take-off' from Malthusian stagnation), and facilitate the re-allocation of production factors from the traditional to the modern sector. Since the modern sector requires a higher level of skilled labour, entrepreneurs cause an increase in the demand for educated labour. This leads to an overall improvement in human capital in a country, in turn facilitating the imitation and adoption of foreign technology.[26] Their model implies that a 'rapid' expansion of skilled labour can only be absorbed if entrepreneurial ability is high, and that without entrepreneurial ability the returns to physical and human capital is low (Nelson and Pack 1999:423).

Knowledge accumulation requires high levels of innovation, which results in more complex production methods, the increasing production of specialized intermediate

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[26] Keller (2004:752) point out that for most countries, foreign sources of technology account for 90 per cent or more of local productivity growth.

inputs (Ciccone and Matsuyama 1996:33), and an increase in the technological intensity of a country's economic structure (Pereira et al. 2007). Thus, the transformation from a low-income, traditional economy to a modern economy also involves significant changes to production methods, a process of change where entrepreneurs provide essential roles: first, in creating new firms outside of the household, which offer new products; and second, in growing firms (and wage employment) by making use of scale economies. Such larger firms tend to specialize, and the clustering of specialized firms can give rise to localization economies, further encouraging innovation and specialization.

During the stage where growth and productivity is driven by knowledge accumulation, countries must generate, as well as commercialize, new knowledge. This requires, amongst others, cooperation between researchers and entrepreneurs: researchers/ inventors need in many cases to be matched with suitable entrepreneurs (Michelacci 2003).[27] One way of improving this cooperation or matching is through linkages between universities (researchers), private firms (entrepreneurs), and government (subsiding research and development—R&D) (Wennekers et al. 2005:295).

Although many developing country governments are spending substantial amounts on innovation and R&D subsidies, and in establishing university–private sector cooperation through for instance establishment of science parks, little research has studied these attempts. Generally, the suggestions from the literature are that poor countries should not be focusing their attention on R&D/new knowledge generation, but rather in imitation and technological catching-up (see e.g. Estrin et al. 2006:697).

Schmitz (1989) stressed the importance of imitation by entrepreneurs and argues that it may be more important for the majority of developing countries than new knowledge generation. He presents a model in which entrepreneurs imitate and implement existing technology, and learn-by-imitation. A simplifying assumption in his model is that technology is easily observable and commonly available. This is not always the case. In fact according to Nelson and Pack (1999), there is great uncertainty in the adoption of foreign technology, and a measure of the ability of entrepreneurs is how well they shoulder this risk. Furthermore, not all imitation is costless: Holmes and Schmitz (1990) point to many new innovations, such as locating or managing a firm, that are costly to imitate.

The process of change involving the composition of goods produced in an economy has interesting implications for the development of entrepreneurship itself, so that entrepreneurship may be itself endogenous in the development process. Ciccone and Matsuyama (1996) explains this in a model where they make a distinction between consumer goods and intermediate goods. If a particular economy produces a limited range of intermediate goods, they show that the final (consumer) goods sector will use 'primitive' production methods and will have little demand for sophisticated, new inputs. This will lead to lower incentives for potential entrepreneurs to start-up new firms (1996:34). The economy can get stuck in such an underdevelopment trap with primitive production in its (small) modern sector. They also point out that there might, in such an

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[27] Researchers, who 'produce inventions' and entrepreneurs, who 'implement them', need to be matched: if not, the returns to innovation will be lower, and innovation effort will decline, with adverse consequences for productivity growth and competitiveness (Michelacci 2003:207).

'underdevelopment trap' be a case for assistance to new start-ups since these can provide both pecuniary and technological externalities if they start producing new intermediate goods—which will induce final good producers to demand more of these (in turn improving the incentives for other entrepreneurs to start-up firms due to greater demand and the example provided in the application new technology). In this model, start-ups face positive start-up costs that include R&D activities in bringing a new good to the market.

That entrepreneurs create a positive externality through bringing new goods to the market and in the process illustrate how new technology can be applied, has been extended by Hausmann and Rodrik (2003) who point out that entrepreneurs provide not only these technological externalities in bringing new goods to market, but further pecuniary externalities by providing information on the profitability of new activities. In this sense entrepreneurs fulfil a 'cost-discovery' function in making sunk costs in a new activity which *ex ante* may or may not be profitable, but which will provide information *ex post* on such profitability to other entrepreneurs. In so doing, entrepreneurs provide information on what an economy can be good at producing, which in the context of developing countries is information that may be fundamentally lacking and thus subject to uncertainty (Hausmann and Rodrik 2003).

One implication from these strands of models is that it may in fact not be primarily through existing firms that economic structural transformation and growth may be driven, but through in the creation of new firms, i.e. start-ups. Research suggests that start-up firms are the ones most likely to grow (Lingelbach et al. 2005; Johnson et al. 2000) and to create new jobs (Audretsch et al. 2006:25; McMillan and Woodruff 2002:166). In many transition countries, where there was no significant private sector to start out with, new firms often strengthened reforms by improving economic conditions, as for instance in China (McMillan and Woodruff 2002:153). New firms can be important in a transition context since they are 'less encumbered with the historic influences of such a society', as opposed to existing firms that may be undergoing reform, and that some form of private sector development could be a condition for successful privatization of inefficient state-owned firms (Estrin et al. 2006:693).

Finally, an aspect of duality that is receiving increasing attention is that between the formal and informal sector. Zenou (2007) presents a dual economy model where the duality is not in a traditional/modern sector as such, but in the labour market. This mirrors the reality in many developing countries where the labour market is fragmented into an informal and formal sector (Maloney 2004). The informal sector mostly consists of self-employed (entrepreneurs) persons, and as pointed out by Zenou (2007:1) is substantial in many developing countries, for instance accounting for between 20 to 80 per cent of non-agricultural employment in Africa. The formal sector consists largely of wage-employment, and is characterized by high unemployment rates. High unemployment and vacancies co-exist in the formal sector due to job-search frictions, which do not exist in the informal sector where job-seekers can create their own firms, or enter into employment with informal family-owned firms. De Paula and Scheinkman (2007) find that informal firms are often a form of 'evasive' entrepreneurship in order to evade taxes or regulations, or to engage in illegal trade. They also find that they are less efficient, less able to obtain finance, and more likely to be dominated by entrepreneurs of low ability, as measured by educational attainment (De Paula and Scheinkman 2007:4). Thus to a large degree, the informal sector appears much like the traditional/ subsistence sector in typical dual economy models, which suggests a path to faster growth by allowing entrepreneurs of high ability to 'migrate' to the formal sector.

4.2 Undermining economic development

There are various ways in which entrepreneurship is identified to undermine economic development, thus not all types of entrepreneurship are good for economic development. As a consequence there has even been an argument for a tax on entrepreneurship. Herein I will briefly review this literature. The most salient adverse effects of entrepreneurship can be due to either: (a) perverse allocation towards activities that are personally profitable but socially destructive or unproductive; and (b) low quality entrepreneurship that may have negative externalities.

4.2.1 Perverse allocation of entrepreneurial talent

We have identified a view of entrepreneurship, associated with Baumol (1990), Murphy et al. (1991), Acemoglu (1995), Mehlum et al. (2003), Coyne and Leeson (2004), and others, that see entrepreneurship as a ubiquitous in society, but with different impacts on economic development, which will depend on whether entrepreneurial ability is allocated towards productive, or non-productive, destructive or evasive ends (recall section 2). The latter, perverse allocation—the 'misallocation' of entrepreneurial ability may hinder economic development (Acemoglu 1995; Mehlum et al. 2003).

It is not only the absence of good institutions that may result in the inappropriate allocation of entrepreneurial ability. Slow economic growth in itself may cause the wrong allocation of ability and entrepreneurship. For instance, it is well known that when economic growth is low and employment opportunities in the formal sector are scarce, that self-employment will rise, and that this rise will include a large proportion of people with low levels of entrepreneurial ability. However, during periods of low economic growth the incentives for innovation, as in bringing new goods to market, will be low, since the demand for new goods tends to have an income elasticity of greater than one. Entrepreneurs of high ability will therefore engage in rent-seeking activities rather than productive entrepreneurship, and this re-allocation of entrepreneurial talent will be greater in countries with higher levels of wealth or natural resources from which rents may be extracted (Murphy et al. 1991:520). Thus in such circumstances the quality of the entrepreneurial pool in a country worsens from both the inflow of low-ability entrepreneurs as well as the outflow of high-ability entrepreneurs. This will lead to further restrictions from the side of credit markets, in the form of higher interest and/or collateral requirements—which may further push out talented entrepreneurs. The consequence is that poor countries may be caught in a self-reinforcing 'entrepreneurial' development trap.

Mehlum et al. (2003:276) present a model to show how a poor country can become trapped in low development as a result of the misallocation of entrepreneurial talent towards what they term 'predation'. In their model, an entrepreneur must make a choice between becoming a 'predator' or 'prey' (i.e. a producer). Predator activities include theft, extortion, bribery, and fraud. Economic growth and development itself will influence this choice: they state that 'at a low level of development, predation is more attractive than at higher levels'. This is because of insecure property rights. Economic growth and the inflow of new entrepreneurs is, in their model, an escape from this trap, as economic growth increases the incentives/profits from productive activities, as well as increasing the ability of government to improve law enforcement. Such a new inflow of entrepreneurs have been argued to undermine vested interests and even 'crowd-out' rents by providing new and substitute opportunities (Baland and Francois 2000:528).

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This is however also an important reason why new entrepreneurial ventures are often repressed in many poor countries.

Finally, Naudé (2007) discusses the role of entrepreneurs during and after conflict, and points out that the activities of entrepreneurs during conflict, especially of 'destructive' entrepreneurs who benefit from the conflict, may make post-conflict transition difficult to achieve. He argues that at least six dimensions need to be taken into consideration in addressing the role of entrepreneurs in post-conflict situations, namely: the context of the war; the relationship between institutions and entrepreneurship; the role played by ethnic/immigrant (minority) entrepreneurs and entrepreneurs in diaspora; the scope of the market; human and financial capital requirements; and appropriate forms of government support.

4.2.2 Low quality entrepreneurs

As has been stressed in this paper, a central theme in the literature on entrepreneurship is that entrepreneurial ability/talent or 'effectiveness' (θ) matters (see section 3.2.1). This ability is however difficult to observe *ex ante* and as such measures to facilitate the entry of entrepreneurs may also encourage entrepreneurs of low ability.

De Meza and Webb (1987; extended in 1999) show that credit market imperfects may lead to 'overinvestment', and not underinvestment as in the Stiglitz and Weiss (1981) model, when ability (and profits) differs amongst entrepreneurs, and banks cannot accurately judge ability. In essence high profit (ability) entrepreneurs subsidize low profit (ability) entrepreneurs.[28] They argue that a tax on interest rates in such a case could improve social welfare. Parker (2003) builds on De Meza and Webb and shows that their conclusions are only likely to hold under special conditions.

Ghatak et al. (2007:2) point out that entrepreneurial ability affects the success of a firm, which in turn matters for the probability of the entrepreneur repaying a loan. Because banks cannot observe any entrepreneur's ability *ex ante*, interest rates on start-up capital will reflect average entrepreneurial ability. If the proportion of entrepreneurs of low ability increases, it will result in higher borrowing costs, which impose a negative externality on entrepreneurs of high ability, who will consequently borrow and invest less.

A second channel through which the entry of entrepreneurs with low ability might hinder economic development is through the impact of entrepreneurial ability on the productivity of employed workers. Entrepreneurs of low ability will have less

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[28] The Stiglitz and Weiss (1981) model assumes that all entrepreneurs have the same ability (and subsequently returns) but are subject to different risks. They show that equity finance is the optimal method of finance in such a case. However, if only debt finance is available, as in underdeveloped markets, then credit constraints due to adverse selection will apply, and entrepreneurs' investment will be less than optimal. In contrast, in the De Meza and Webb (1987) model entrepreneurs differ in ability and will therefore offer different returns. They show that debt finance is the optimal method of finance, but that due to asymmetric information about entrepreneurs' ability, banks would tend to provide too much finance, extending finance to entrepreneurs with lesser ability. In essence, high ability entrepreneurs cross-subsidize low ability entrepreneurs (De Meza and Webb 1987:281, 292). With higher own wealth, this cross-subsidization may still occur if it induces entrepreneurs to take on less risky projects (De Meza and Webb 1999:154).

productive workers, who will earn lower wages. By reducing wage costs, these entrepreneurs in effect lower the opportunity costs of entrepreneurship or self-employment, and facilitate the entry of more low-ability entrepreneurs (Ghatak et al. 2007:2).

4.3 Empirical evidence

In the preceding sections I described the role of the entrepreneur in various theoretical explanations that have been put forward for the structural transformation and growth of economies. There is substantial cross-country empirical evidence documenting the changing composition of an economy as it modernizes. There is also growing cross-country empirical evidence on the role of human capital and technological progress on economic growth. There is however much less cross-country evidence on the role of entrepreneurship in these processes. One reason for this is due to the difficulty of measuring entrepreneurship, and the lack of sufficient data, especially on entrepreneurship in developing countries (Wong et al. 2005:335; Van Stel et al. 2005: 318).

From the best available cross-country data, gathered by the GEM, Wennekers et al. (2005), Acs (2006), and Amorós et al. (2007) document and discuss a U-shape relationship between self-employment, total entrepreneurial activity (TEA—a measure of nascent entrepreneurship), and per capita income. This relationship is depicted in Figure 2, using GEM data on TEA from 37 countries in 2002.

Figure 2: The relationship between entrepreneurship and economic development
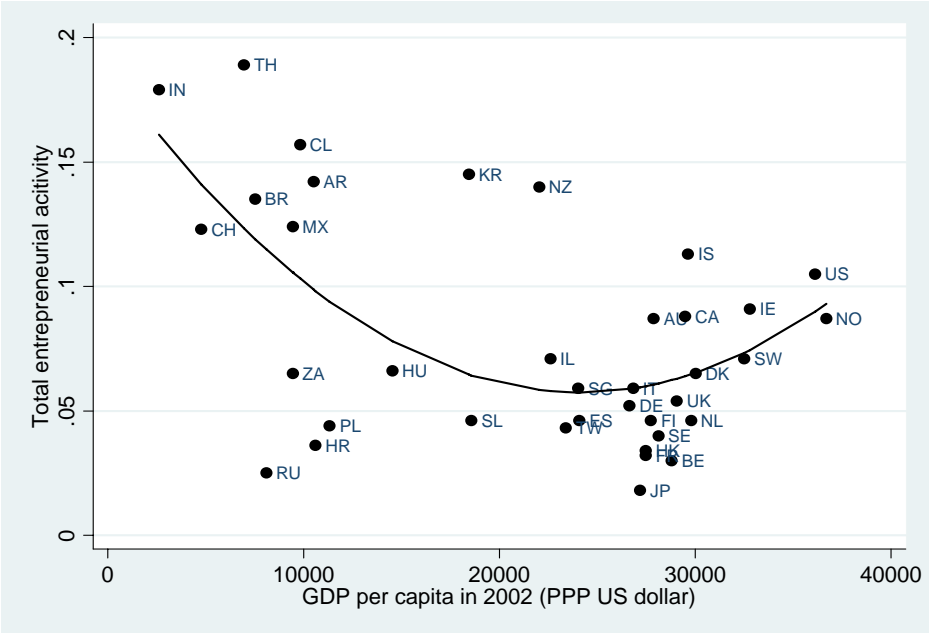
Sources of data: Van Stel et al. (2005:319); World Bank (2007).

Figure 2 shows that there exists a U-shape relationship between entrepreneurship (as proxied by TEA) and economic development (as proxied by GDP per capita) in 2002.[29] This relationship has also been found to hold for self-employment rates and GDP per capita. How can this relationship be reconciled with the role of entrepreneurship in structural economic transformation and growth (as discussed in section 4.1)? At low levels of development (low per capita income) self-employment is high due to lack of sufficient wage-employment. This is the situation that will typically prevail in the traditional (Malthusian) society where production would also take place within the household (mainly in agriculture) and be aimed at subsistence. It will also prevail where larger firms are mainly absent (due to lack of economies of scale) and property rights cannot be strongly enforced. In this situation there will be many individuals with high entrepreneurial ability, but there will not be many profitable opportunities to exploit that would result in economic growth. However, over time population growth and technological advances in agriculture and transport would result in growing (urban) agglomerations of people, which will result in turn in larger markets, where economies of scale can be reaped and where innovation, creativity, and learning can take place (see also Goodfriend and McDermott 1995)—hence cities have been described as 'nurseries' of firms (Duranton and Puga 2001). Entrepreneurs will identify greater opportunities in this context, which will result in growing investment and re-allocation of production factors from the traditional, subsistence sector, to the modern sector, and economic growth will start as depicted in the dual economy models. With entrepreneurs creating new and growing firms and as wages start to rise in the more productive modern sector, the opportunity costs for self-employment will rise and the ratio of self-employed to wage-employed will decline. This corresponds to the downward sloping part of the U-shaped curve in Figure 1.

According to Wennekers et al. (2005:295) 'from a certain level of economic development onwards, the employment share of manufacturing starts declining, while that of the services sector keeps increasing with per capita income, providing more opportunities for business ownership'. This level of development corresponds to the transition from the capital-driven stage of growth to the knowledge-driven stage of growth (as discussed in section 4.1). It is also accompanied by development of the institutional foundation for entrepreneurship, in particular protection for property (especially intellectual property).[30] Growth in the service sector together with adoption of new technologies that lessens the need for economies of scale opens up many new opportunities that can be utilized by small firms, and leads to a rise in self-employment, corresponding to the upward-sloping portion of the U-shaped curve in Figure 1. These types of firms are often 'high-potential' firms, implying that self-employment may have a more significant impact on economic growth at higher levels of development (Van Stel et al. 2005; Wong et al. 2005:345).

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[29] The U-shaped fitted line was obtained by regressing total entrepreneurial activity against per capita GDP and per capita GDP squared. The results were as follows: TEA = $0.187 – 0.00GDP + 2.24GDP^2$ with adjusted $R^2 = 0.30$ and all the coefficients statistically significant at the 5 per cent level.

[30] Li and Feng (2005) discuss, with reference to China, how entrepreneurs ('institutional' entrepreneurs) can drive the adoption of institutional changes that are more conducive to entrepreneurship in general.

5   Policy implications

Governments and development agencies across the world are devoting substantial resources to encourage entrepreneurship. This is especially evident in small business and private sector development support programmes promoted by departments of trade and industry, and development agencies within the UN and the World Bank,[31] to name but a few. Therefore, any discussion of the role of entrepreneurship in economic development has to contend with the implications from the analytical models and empirical evidence for policy. In this section I will pull together some of these from the preceding sections.

Three questions can be asked in the context of a government or development agency's role in attempting to support entrepreneurship: first, whether entrepreneurship *should* be supported? Second, whether entrepreneurship *could* be supported? And third, if the answers to the first two questions are positive, what are the most effective means of support?

5.1 Should entrepreneurship be supported?

The answer here may depend on the definition of entrepreneurship that the policy maker or development agency has in mind. I pointed out earlier that many so-called entrepreneurship support programmes are more specifically programmes that support small and micro firms, and the self-employed. However, small and micro firms are not necessarily synonymous with entrepreneurship: many of these firms do not contribute significantly to economic growth and development (Wennekers and Thurik 1999:29). Also, many people turn to self-employment out of necessity or out of the desire to evade regulations, taxes, and other agents' predatory activities. It was shown in the previous section that as development proceeds, the proportion of people in self-employment will decline, as the many necessity entrepreneurs now find more suitable wage employment. Self-employment may thus be reflecting productive, unproductive, evasive, and destructive forms of entrepreneurship, and may therefore be an unreliable guide as to the effectiveness of policies in stimulating productive entrepreneurship, and of measuring the impact of entrepreneurship on economic growth.

Moreover, many small business support programmes may not be supportive of entrepreneurship *per se*. Schramm (2004:105) describes most small business support programmes as poverty and livelihood oriented, tending to 'involve cottage industries that add little to the economy in terms of productivity or growth'. Empirical evidence that small business development *per se* will be good for growth is lacking. Beck et al. (2003) find no evidence that small business firm growth is associated with higher growth levels, and Parker (2006:453) reports that there is an ambiguous empirical relationship between the rate of self-employment (often taken as a measure of entrepreneurship) and unemployment rates. Audretsch and Thurik (2004:1) point out that many small business support programmes are in fact undertaken for social and political reasons rather than for economic motivations.

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[31] The World Bank Group for instance, approved more than US$10 billion in SME support programmes over the period 1998-2003 (Beck et al. 2003:1).

Not only may such small business support programmes not be effective in supporting entrepreneurship, they may even be disadvantageous to entrepreneurship. This possibly counter-intuitive conclusion was suggested in section 4 where it was argued that increasing the rate of self-employment through, for example, small business policies (such as microfinance) could lower the quality of the pool of entrepreneurship in a country or region, which could have negative external effects on entrepreneurs of high ability.

Thus, the discussion so far would suggest that the type of entrepreneurship that should be supported, should rather be 'high potential' entrepreneurship, that is entrepreneurs with high ability to be an entrepreneur, where the likelihood of firm growth is higher (it was shown that firm size depends among other things on entrepreneurial ability).[32] Indeed, *entrepreneurial ability* was emphasized in this paper to be a golden thread running through the economic studies of entrepreneurship. The fundamental policy implications seem to be that not all persons should allocate their talent towards becoming entrepreneurs, but those with high entrepreneurial ability should be assisted to become entrepreneurs. Leaving aside (until the next sub-section) the ways in which this may be achieved, I can summarize the case for supporting such high-ability entrepreneurs.

The case that governments *should* support high-ability, high-potential entrepreneurs, even via taxes, can be based on the fact that it may have significant externalities: the private costs and benefits of entrepreneurship are likely to diverge in many instances from social costs and benefits. Thus, I have pointed out in this paper that it has been suggested that the private benefits of entrepreneurs' 'cost discovery' or technological innovation is much less than social benefits, which reduce the incentives for entrepreneurs to provide these 'services'. Furthermore, the positive relationship between the stock of entrepreneurs and the levels and rates of human capital formation in an economy, as posited and tested for by Dias and McDermott (2006) implies that policies that can increase productive entrepreneurship can also speed up the structural transformation of an economy. These positive externalities imply that entrepreneurship should be supported through some form of subsidy (see section 5.2).

However, there may be cases where the social costs of 'unproductive' or 'evasive' entrepreneurship may be higher than the private benefits thereof, and where low ability entrepreneurs may crowd out higher ability entrepreneurs. In such cases, some form of taxation and/or regulation of entrepreneurial entry may be called for. Strong policy implications have emanated from the work of De Meza and Webb (1987; 1999), Coelho et al. (2004), and Ghatak et al. (2007) on the effects of low ability entrepreneurs on economic development. More radical proposals have included that entrepreneurial entry be more heavily regulated and that entrepreneurs be taxed higher (for instance through a tax on interest), so as to weed out low ability entrepreneurs. Such taxes have been argued to improve both social and the private welfare of entrepreneurs (Kanniainen and Poutvaara 2007:677).[33] It also implies that provision of subsidized credit/finance to

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32 This is also the point of departure of Stam et al. (2007b) who present a case study of entrepreneurship policy in the Netherlands, where the objective of entrepreneurship policy is to promote high-growth potential firms.

33 Criticism against the taxation of entrepreneurs, especially in developing countries where self-employment is often a response against excessive regulation and an absence of strong property rights

start-ups may have perverse or neutral effects on economic growth, since this will lower the quality of the pool of entrepreneurs, and create an adverse selection problem that banks might try to overcome by raising required collateral (Ghatak et al. 2007). Other policy proposals have included raising wage rates, as this would be good for both workers as well as entrepreneurs, since with higher opportunity costs, the average quality of entrepreneurship will increase, which will result in lower borrowing costs and encourage high ability entrepreneurs to start-up. Wage rates could for instance be raised through an intervention that raises average productivity (Ghatak et al. 2007).

5.2 Could entrepreneurship be supported?

There is a strand of literature, associated with the Austrian School, which is of the opinion that governments cannot raise the supply or quantity of entrepreneurship, but can merely influence the allocation of entrepreneurial ability. In the words of Coyne and Leeson (2004:247) 'government policy cannot create entrepreneurship'. All that government should do in this view, is to 'get the institutions right', i.e. ensure protection of property rights and a well-functioning legal system and maintain macroeconomic and political stability and competitive tax rates.

Not all will agree that government cannot influence the supply of entrepreneurship. Arguments in favour of governments' ability to raise the supply of entrepreneurship centre around government's ability to lower entry costs and regulations, support innovative activities (e.g. R&D), and whether or not—and how—government can improve entrepreneurial ability in a country. The wide range of entrepreneurship rates across countries, even when controlled for variations in institutional quality, would suggest that specific policies and regulations—such as start-up costs—may have an influence on the supply of entrepreneurs. Figure 3 shows for instance that there is a negative relationship in a sample of 37 countries between start-up costs and the start-up rate.

While not indicative of causality between start-up rates and start-up costs, the fact that high start-up costs are associated with low start-up rates in developed countries such as Japan, the Netherlands, Switzerland, and Sweden could suggest that the supply of high-quality entrepreneurship could be influenced. In fact, a key policy of the European Commission to increase the supply of entrepreneurship in the EU is through education and programmes to make people aware of the potential of entrepreneurship as an occupation.

(evasive entrepreneurship) is summarized by Kanniainen and Poutvaara (2007) who also point to the positive externalities generated by entrepreneurs in developing contexts. Extensions and refinements of the models of De Meza and Webb (1987; 1999) by Parker (2003) suggest a less strong possibility for 'over-investment' to occur.

Figure 3: Relationship between start-up costs and start-up rate in GEM sample, 2002

Sources of data: World Bank (2003); Van Stel et al. (2005:19).

5.3 What are the best ways of supporting entrepreneurship for economic development?

From the discussion in sections 5.1 and 5.2 a case for the support of high-ability, high-potential entrepreneurship was made, and it identified that government and international development agencies could influence both the quantity (supply) as well as the allocation of entrepreneurial talent. I can now draw the conclusions for the types of policies that would be consistent with this.

First, what type of policies could stimulate the supply of entrepreneurship? Here I will focus on three types of policies: those aimed at raising the entrepreneurial ability; policies aimed at raising the non-pecuniary benefits of entrepreneurship; and policies to address the levels of start-up costs and business regulation.

Entrepreneurial ability is the key to most economic models of entrepreneurship. How can entrepreneurial ability be improved? Holmes and Schmitz (1990:266-7) argue that entrepreneurial ability can be improved through 'experience, training, schooling and improvements in health'. Of course, as was noted in section 3.22, education (as well as better health) can influence both returns from entrepreneurship (as it improves entrepreneurial ability) as well as from wages (it makes for more productive workers). Therefore, a priori, the effects of education and health investments on their own upon entrepreneurship may be ambiguous. Certainly, some evidence suggests that the type of knowledge imparted (e.g. more practical, general education) is important, and also suggests that in building entrepreneurial capacity tacit knowledge and learning by doing may be vital. Thus, if existing successful entrepreneurs of high ability can share their

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knowledge, and act as trainers or mentors for younger or nascent entrepreneurs, more effective strengthening of entrepreneurial ability may occur. In this regard, Kanniainen and Poutvaara (2007) have suggested that more successful firms may be sold if the incumbent entrepreneur (having demonstrated high entrepreneurial ability) can be supported—perhaps even subsidised—to impart some of his/her tacit knowledge of the firm and its environment to the new incoming entrepreneur. Entrepreneurial ability can also be improved through complimentary support for R&D. As will be argued below, imitation may be a better policy in developing countries, and only after macroeconomic stability and uncertainty have been addressed in many countries. However, in developed countries R&D policies, to stimulate innovation and competitiveness, are seen as key policies to support entrepreneurship. It was shown in section 3 that the existence of vertical complimentarity between intermediate inputs and final goods production, as described in the model of Ciccone and Matsuyama (1996) suggest the case for government support of R&D activities and general start-up costs, as these are shown in their model to have both pecuniary and technological externalities.

Entrepreneurs may be also be enticed by improving the non-pecuniary benefits of entrepreneurship. This is mainly seen to be accomplished by improving the 'culture' of entrepreneurship in a society. It may also be important to create a climate in which greater investments in entrepreneurial ability may be forthcoming. Thus (as noted in section 3.1), a culture that is less critical of inequality, business failure, and personal independence may be more conducive to entrepreneurship. This has raised the possibility that government's can foster an 'entrepreneurial culture' in society as a way to raise productive entrepreneurship. One way for example would be to encourage role models of entrepreneurs (Giannetti and Simonov 2004:272).

There is little evidence however, that governments can decisively change cultural or social norms significantly. Various authors have argued that culture tends to be resistant to change and is stable over long periods (Licht 2007:850). Licht (2007:856) has also argued that because many entrepreneurs are motivated by non-pecuniary gains, policy efforts to stimulate entrepreneurial entry by reducing the costs of exit (e.g. through making bankruptcy procedures less onerous) may not be effective.

However, to the extent that these may reduce the stigma attached to failing and encourages re-entry into business for habitual entrepreneurs, a positive impact on entrepreneurship may result. There may be two justifications for wanting to encourage such habitual entrepreneurship. One is that many firms fail due to the poor ability of entrepreneurs, but that some entrepreneurs actively learn during this process and thus improve their ability, so that they may be more successful a second time around. A second justification is that many firms fail due to bad luck, and that too stringent bankruptcy laws might prevent entrepreneurs of high ability being able to meet their potential (Cressy 2006:114).

The quantity of entrepreneurship may also be influenced by start-up costs and regulations. As was reported in section 3.2.2 and illustrated in section 5.2, there is growing empirical evidence that entry costs and regulation may discourage productive entrepreneurs from starting up a firm. The policy implication that follows is that entry costs and regulations should be reduced.

From the discussion in this paper, this policy implication could be supported (section 5.2), but with the caveat that a country's level of development needs to be taken into

consideration, as well as the reasons for the existence of these entry costs and regulations in the first place (see section 5.1). For instance, in underdeveloped countries with high levels of corruption, the entry barriers may be a source of rents to corrupt officials, so that these barriers may not keep out dishonest entrepreneurs and will make reform or abolishment of these barriers difficult. Thus in such a situation the removal of barriers, if that could be achieved, may have relatively more positive effects in that more entrepreneurs of ability could now enter the market, sources of rent-seeking/ unproductive activities could be eliminated, and competition levels improve. Once these gains have been made—and governance has been improved—some limited form of regulation may be re-imposed so as to protect the public from dishonest entrepreneurs.

The second broad strand of policy measures aims to change the allocation of high-ability entrepreneurs away from unproductive, destructive, or evasive forms of entrepreneurship towards productive entrepreneurship. In this regard much of the current literature suggests that the most important 'policy' for improving productive entrepreneurship is to get the institutional framework in a country right.[34] An appropriate institutional framework is one that ensures entrepreneurs can capture the profits or rewards of their activities. This requires secure property rights (Wiggens 1995), the rule of law (Parker 2007), reasonable levels of taxes on profits, currency convertibility, contract enforcement and financial stability, as well as the 'fostering of opportunities' for new entrepreneurs through competition policy (Dutz et al. 2000:742).

Building appropriate institutions in underdeveloped countries, particularly those that are in conflict or emerging from conflict, is notoriously difficult. A number of factors complicate institutional design, suggesting that although there may be certain core universal requirements, a one-size-fits-all approach to institutional design may be inappropriate. For one, institutions are endogenous (Acemoglu et al. 2005) and relatively little is known about the co-evolution of institutions, entrepreneurial behaviour, and a country's stages of development (Fogel et al. 2006:572). Two, institutional reform itself is an ongoing, dynamic process that needs to be managed with care towards its speed and consistency (Estrin et al. 2006). It creates uncertainties that can have unwanted outcomes for productive entrepreneurship to emerge, such as the entrenchment of former elites and a rise in rent-seeking behaviour (Naudé 2007). Three, initial conditions may matter for the dynamics and success of institutional strengthening. These include the distribution of income and wealth before the commencement of institutional reforms and institutional building. High wealth inequalities may be associated with lower start-up rates. It also has to be recognized that during civil war, different households will have different means and opportunities to maintain or dispose of assets so that their post-conflict ability to start-up businesses will differ across the country and between various groups (Addison 2001; Brück 2006). Household structure, which in itself may be influenced by the war, will influence the subsequent start-up rate not only through the assets that may allocate towards new ventures, but also in its attitudes and experiences towards risk-taking and existing commitments (Brush and Manolova 2004:39). Hence the call by Naudé (2007) for decentralization of entrepreneurial support programmes. This suggests the importance

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34 It has been argued that entrepreneurs may themselves bring force to bear for appropriate institutional change. Li and Feng (2005:5) call such entrepreneurs 'institutional entrepreneurs' defined as 'innovative person[s] who starts or expand his [/her] business venture and in the process help destroy the prevailing non-market institutions in order for his [/her] business venture to be successful'.

of targeting various groups (in particular women) and places in a country so as to have the best effect on start-ups. It also suggests that the borders between firms and households in fragile states are often blurred and that understanding households better may improve understanding of entrepreneurship in these situations.

Finally, one should recognize that post-conflict transition can go through various stages, as it did in the Eastern European countries and former Soviet Union. Estrin et al. (2006:697) document three phases, each with its own implications and opportunities for entrepreneurship. In the first phase they note that uncertainty will be high, but that many opportunities for arbitrage will exist. Policy should aim to reduce uncertainty (e.g. through macroeconomic and political stability) and encourage entrepreneurs to be active as traders and go-betweens (middlemen). In the second phase, longer-term investment will start to take place, as lower uncertainty and government stability give rise to public sector investment projects and the latter start to crowd-in private sector investment. The efficient implementation of public sector investment projects and the attraction of external resources for investment (aid and foreign direct investment) are important policy objectives in this phase. The third phase is characterized by the deepening of institutions to promote finance, market exchange, and contract enforcement. Entrepreneurs in this phase will engage in raising levels of competition, and the growing maturity of networks and national innovation systems will encourage technological transfers and innovation. Policy objectives during this phase should include the promotion of R&D,[35] university-based research, networking, and clustering.

6 Concluding remarks

Entrepreneurship is important for economic development. In this paper I have discussed the process of entrepreneurship from an economic point of view, and described how this process can influence economic development and growth. The focus was on how entrepreneurial activity, through the creation of new firms, can benefit economic development; (i) over the long-run by triggering a 'take-off' from Malthusian stagnation, (ii) by stimulating structural economic transformation from a predominantly traditional/agricultural economy to a modern/industrial economy, and (iii) generate continued productivity increases through innovation-driven growth in advanced economies.

I have shown that in the process of entrepreneurship and its threefold role in economic development that entrepreneurial ability, the relative rates of return to being self-employed, and obstacles such as start-up costs and credit market imperfections will determine the quantity and quality of entrepreneurship in a region or country. This

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[35] Should developing countries spend many resources on R&D? The answer would seem to be that it is not vital, especially during the first stages of institutional development. For one, imitation may have higher returns initially (Schmitz 1989:724). Two, spending on R&D can crowd-out entrepreneurship with the result that there might be new ideas but not enough entrepreneurs to implement them (Michelacci 2003:256). Three, empirical evidence finds that entrepreneurship is distinct from innovation and will contribute more than knowledge capital to economic growth (Audretsch and Keilbach 2004:949). Van Praag and Versloot (2007) mention that entrepreneurs and innovators in developing countries are often unable to expropriate the benefits of their innovations—the implication being that R&D expenditure may be ineffective, or result in registration of patents that are not very useful.

leaves open the possibility that not all entrepreneurs will be engaged in activities that have positive consequences for economic growth. While all entrepreneurs are motivated to seek opportunities for self-advancement, in some cases the private benefits of their actions will be outweighed by social costs. In this regard I have argued that (i) perverse allocation of entrepreneurial ability to rent-seeking, evasion, and predatory activities and (ii) low quality entrepreneurial ability can contribute to economic stagnation and even a 'development trap'.

This suggests that the policy implications for promoting the type of entrepreneurship that will contribute to high economic growth and will have positive externalities will need to raise both the quantity as well as the quality of entrepreneurial ability. Country experiences and empirical evidence suggests that the *quantity* of entrepreneurial ability can be improved through, for instance, education (the type may be important), culture, raising awareness of entrepreneurship as an occupational choice, and through learning by doing.

The *quality* of entrepreneurial ability can be improved through incentives that will entice those individuals with the highest entrepreneurial ability to become entrepreneurs and entice other self-employed back into wage employment. Herein selection mechanisms (e.g. entry regulations) and allowing entrepreneurs to 'specialize' in entrepreneurship (i.e. stimulating habitual entrepreneurship) may be important. I have pointed out that these policy implications may in many instances run counter to received wisdom and practices, for instance it suggests that not all education may benefit entrepreneurship since the opportunity costs for the highly educated in entrepreneurship may be higher; it also suggests that entry regulations may fulfil a positive function, and that credit subsidies for start-ups may dilute the quality of the entrepreneurial pool with adverse spill-over effects on good entrepreneurs.

It is also important to complement measures aimed at raising the quantity and quality of entrepreneurial ability with institutional building to improve the *allocation* of entrepreneurial ability. Thus measures to increase the quantity and quality of entrepreneurs when they are uncertain about their rewards from productive entrepreneurship may result in increased rent-seeking, or evasion of regulations and tax measures. Here, macroeconomic stability, positive economic growth, and ensuring a reduction in uncertainty in the economic environment are important. Strengthening institutions such as property rights, contract enforcement, the rule of law, and reasonable taxation are furthermore basic requirements to limit perverse forms of entrepreneurship.

If these measures are successful in raising the quantity and quality of entrepreneurship and in providing incentives for the allocation of entrepreneurial ability towards activities that support economic growth, the result in many poor and underdeveloped countries would be to see an initial *reduction* in the rate of entrepreneurship as measured by the self-employed or business ownership rate. High ability entrepreneurs will create jobs, increase the average size of firms, raise incentives for education and migration to urban agglomerations and the modern economy, diversify an economy by uncovering its production possibilities, and demonstrate and facilitate the adoption of new technology. Ultimately this would result in an economy whose structure is dominated by the service sector, populated by high-technology firms and highly (appropriately) educated workers. Opportunities for self-employment in high-growth potential service/innovation oriented small firms would multiply, and would raise the

rate of self-employment. Sustained growth will then depend only on how entrepreneurial ability interacts with the availability of opportunities.

However, not enough is known about the dynamics of institutions in developing countries and how they will influence the quantity and quality—and allocation—of entrepreneurial ability. This should form an important part of the research agenda on entrepreneurship in development. Improving our understanding of the role of occupational choices within dual economy models and how these relate to dynamic, endogenously driven economic growth could be useful to support further research in this regard.

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