Is entrepreneurship necessarily good? Microeconomic evidence from developed and developing countries

Marco Vivarelli*,**,†

The aim of this study is to provide a microeconomic investigation of the concept of entrepreneurship; in particular, the following issues will be discussed: (i) the alternative ways of looking at entrepreneurship, distinguishing "creative destruction" from simple "turbulence"; (ii) the different microeconomic determinants of new firm formation, distinguishing "progressive" from "regressive" drivers; (iii) the relationship between ex-ante characteristics (of the founder) and post-entry performance (of the new firm); and (iv) the possible scope for an economic policy aimed at maximizing the impact of entrepreneurship on economic growth. Where possible and appropriate, throughout the article, particular attention will be devoted to the specific features characterizing entrepreneurship in developing countries.

JEL classification: L26, O12.

1. Introduction

In recent years, a strong belief that "entrepreneurship" is a crucial driver of economic growth for both developed and developing nations has emerged among both scholars and policy makers (see, for instance, Audretsch *et al.*, 2006; Koellinger and Thurik, 2012; and, for a comprehensive survey, Van Praag and Versloot, 2007). However, moving from macroeconomic scenarios to the micro foundations of entrepreneurship, since the seminal contribution by Baumol (1990) we have known that

*Università Cattolica del Sacro Cuore, Milano and Piacenza, Largo Frá Agostino Gemelli, 1, 20123 Milan, Italy. e-mail: marco.vivarelli@unicatt.it

**SPRU, Jubilee Building, University of Sussex, Falmer, Brighton BN1 9SL, UK. e-mail: marco.vivarelli@unicatt.it

†Institute for the Study of Labour (IZA), Schaumburg-Lippe-Strasse 5-9, 53113 Bonn, Germany. e-mail: marco.vivarelli@unicatt.it

"Schumpeterian innovative entrepreneurs" coexist with "defensive and necessity entrepreneurs," the latter being those who enter a new business not because of market opportunities and innovative ideas but merely because they need an income to survive. For obvious reasons, this kind of "survival-driven" self-employment is particularly diffused in the developing countries (DCs) (Naudé, 2009, 2010), where poverty and lack of formal opportunities in the wage sector often push a large number of people into "entrepreneurial" activities ranging from street vending to traditional and personal services (in most cases within the informal sector of the economy, see Ihrig and Moe, 2004; Maloney, 2004; Sonobe et al., 2011).

Empirically, a worldwide research project, the "Global Entrepreneurship Monitor" (GEM), has been collecting survey data using standardized definitions and collection procedures on potential and actual entrepreneurship since 1999 and now covers 60 developed and developing countries (Zacharakis et al., 2000; Reynolds et al., 2005; Acs et al., 2008b). This project reports the rates of business start-up and self-employment across different countries of the world, but makes it clear that these statistics comprise both "opportunity-motivated" entrepreneurs and those driven by necessity, the latter being defined as those who have started their own firms as a consequence of the following personal situation: "because they cannot find a suitable role in the world of work, creating a new business is their best available option" (Reynolds et al., 2005: 217).

Within this context, the purpose of this article is to provide a contribution to the identification of the role of entrepreneurship in economic growth by mapping out: (i) the different microeconomic determinants of new firm formation, (ii) the relationship between ex-ante characteristics (of the founder) and post-entry performance (of the new firm), and (iii) the possible scope for economic policy aimed at distinguishing progressive entrepreneurship from defensive and regressive forms of firm formation.

In particular, the macroeconomic and sectoral scenarios remain in the background in this study, being briefly discussed in Section 2, where we attempt to throw some light on the concept of entrepreneurship, extending what has already been mentioned in Section 1. Section 3 shifts to the core of our analysis, which is microeconomic in nature; factors determining the foundation of a new firm are discussed, distinguishing between "progressive" and "regressive" entry drivers. Section 4 is devoted to investigating newborn firms' patterns of learning, survival, and growth, and the possible links between ex-ante entrepreneurial features and post-entry performance. Finally, Section 5 briefly discusses some possible policy implications.

While most of the literature relevant to the investigated subject has focused on the developed countries,[1] one of the novelties of this work is that particular attention will

---

[1]Shane (1997) reviewed 472 published articles on entrepreneurship and found that the 13 main authors are all resident in advanced economies and their works deal exclusively with developed countries. More recently, Teixeira (2011), using a bibliometric analysis, has singled out the main

devoted to the specific features characterizing entrepreneurship in the low- and middle-income countries.

2. What is entrepreneurship?

According to Schumpeter (1934), entrepreneurship is a driving force of innovation, and more generally an engine for economic development. As detailed by Wennekers and Thurik (1999) and Dejardin (2011), new firm formation may play a crucial role in fostering competition, inducing innovation and fostering the emergence of new sectors; in this framework, the entrepreneurs leading the new small firms may compensate the restructuring of mature sectors and the downsizing of larger incumbent firms. Ultimately, new firms may substantially contribute to job creation, provided that the net effect of new entrants brings about overall market growth (Malchow-Møller et al., 2011).[2]

Indeed, while endogenous growth theorists (Romer, 1986, 1990; Lucas, 1988; Grossman and Helpman, 1991; Aghion and Howitt, 1997) highlighted the importance of human capital and R&D as additional explanations for increasing returns in the aggregate production function, more recently several scholars have proposed entrepreneurship as a third driver of economic growth and employment generation. In particular, entrepreneurs, through their new companies, would be able to exploit the opportunities provided by new knowledge and ideas that are not fully understood and commercialized by the mature incumbent firms (Acs et al., 2005, 2012; Audretsch et al., 2006; Carree and Thurik, 2006; Braunerhjelm et al., 2010). Thus, according to these authors, entrepreneurship represents the missing link between investment in new knowledge and economic development, serving as a conduit for both entirely new knowledge and knowledge spillovers (see Carlsson et al., 2009; Audretsch and Keilbach, 2011; for a very recent comprehensive survey based on this view, see Braunerhjelm, 2011).

In particular, as well articulated by Baptista and Preto (2011: 421–22), knowledge spillovers brought about by new entrepreneurial firms are generated—directly— through the introduction of new knowledge-based products and the improvement of the variety and quality of existing products, and—indirectly—through the stimulus toward the incumbents that have to cope with the tougher competition through

---

authors in the field of entrepreneurship, finding that all of them are based in the developed countries, mainly United States; by the same token, Nyström (2008) has surveyed 37 studies devoted to the analysis of the relationship between entrepreneurship and employment, productivity, and economic growth, finding that only three of them are considered DCs.

[2]Instead, job destruction may arise when the crowding out of the incumbents is larger than the positive job creation effect brought about by the improvement of supply conditions and improved competitiveness (Fritsch and Mueller, 2004; Acs and Mueller, 2008).

innovation and increasing productivity (see also Baptista *et al.*, 2008; Baldwin and Gu, 2011; and, for a focus on services, Bosma *et al.*, 2011).

However, before continuing, the question of what is meant with entrepreneurship and how it can be measured needs to be addressed. In the industrial organization (IO) literature, the answer is unequivocal: entrepreneurship is the process by which new enterprises are founded and become viable. In this approach, the most common way of measuring entrepreneurship is to look at new firm formation, i.e. at entry rates (either gross or net, that is entry flows minus exit flows). Indeed, according to the OECD (2003), industrial dynamics (i.e. the entry and exit of firms) would account for between 20% and 40% of total productivity growth in eight selected OECD countries, therefore supporting the idea that entrepreneurs represent one of the driving forces of economic growth and structural change (Audretsch and Keilbach, 2004; Foster *et al.*, 2008; Fritsch, 2011). The reasoning is that new entrants can displace obsolescent firms in a process of "creative destruction" (see Schumpeter, 1939, 1943; for an account in an endogenous growth framework, see Aghion and Howitt, 1992), which may be considered an important micro determinant of productivity dynamics, eventually resulting in economic growth. From such a perspective, entrepreneurs are those individuals Schumpeter-labeled "energetic types" who display their "essential features" by introducing the "new" into various activities and by "breaking with the established routines" usually adhered to by managers (Santarelli, 2006: xii).

In more general terms, it has been argued that new firm formation can be beneficial for economic growth (Van Stel *et al.*, 2005), employment generation and unemployment reduction both in developed and developing countries (see Hart and Oulton, 2001; Thurik, 2003; for a recent study assessing the impact of young firms on employment generation and also covering the DCs, see Ayyagari *et al.*, 2011). However, recent studies based on GEM evidence have identified a hockey-stick relationship between a country's rate of entrepreneurial activity and its level of economic development (Reynolds *et al.*, 2001; Wennekers *et al.*, 2005). Indeed, this evidence that new firm formation is very high in extremely poor countries opens the way to considering entrepreneurship as a multifaceted concept, not necessarily associated with innovation, productivity growth and economic development. Indeed, only when "opportunity entrepreneurs" (those motivated by progressive drivers) are distinguished from "necessity entrepreneurs" (those who are self-employed and pushed by defensive and regressive drivers, such as the fear of unemployment), a positive linear relationship between economic development and entrepreneurship seems to be restored (Carree *et al.*, 2007; Acs, 2008; Acs *et al.*, 2008a).[3] By the

---

[3]However, this positive relationship turns out to be barely significant and so the presence of a positive link between entrepreneurship and economic development in advanced economies is highly contested. Only when entrepreneurship is combined with other development indicators, the relation becomes significant; for instance, Acs and Szerb (2010, 2012) have put forward a composite "Global

same token, when the focus is on DCs, a positive relationship between entrepreneur-ship and job creation is detectable only when purely self-employment and informal companies are excluded from the analysis (Ghani et al., 2011a,c).[4]

Turning our attention from the macroeconomic to the sectoral level, the empirical evidence concerning industrial dynamics also casts much doubt on the progressive potentialities of business start-ups. First, survival rates for new firms are strikingly low: according to Bartelsman et al. (2005), who worked on data for 10 OECD countries, ~20–40% of entering firms fail within the first 2 years of life, while only 40–50% survive beyond the seventh year (OECD, 2003: 145). The econometric evidence at the sectoral and microeconomic levels is largely consistent with this outcome; studies on different countries and different sectors reveal that >50% of new firms exit the market within the first 5 years of activity (Dunne et al., 1988, 1989; Reid, 1991; Audretsch and Mahmood, 1995; Geroski, 1995; Mata et al., 1995; Audretsch et al., 1999a; Johnson, 2005).[5]

Second, entry and exit rates are significantly correlated; this is one of the uncon-troversial "stylized facts" of the entry process according to Geroski (1995: 424), who pointed out that the "mechanism of displacement, which seems to be the most palpable consequence of entry, affects young, new firms more severely" (Baldwin and Gorecki, 1987, 1991). Indeed, entry and exit rates have been found to be posi-tively correlated across industries in both OECD countries (Bartelsman et al., 2005) and DCs (Bartelsman et al., 2004[6]).

This evidence opens the way to some considerations regarding the alleged role of entry as a vehicle for technological upgrading, productivity growth and employment generation. Consistently, one should be very cautious in seeing entrepreneurship measured as new firm formation as the main driver of development for a DC. If entry were indeed driven mainly by technological opportunities, growing sales, and profit expectations, one would observe a negative cross-sectional correlation between

Entrepreneurship & Development Index" where actual and potential individual entrepreneurial characteristics are combined with economic, institutional, cultural, and technological variables at the country level; obviously enough, this index turns out to be positively and strongly correlated with per capita GDP.

[4]As properly discussed by Hobday and Afonso de Barros Perini (2009), in this context high rates of "gross entrepreneurship" may even be the consequence of extremely undesirable social conditions, rather than a possible source of innovation and growth.

[5]For instance, Audretsch et al. (1999a) studied 1570 new Italian manufacturing firms with at least one employee and tracked their post-entry evolution for 6 years. They found that hazard rates increased markedly during the first 2 years and then tended to decrease, with a final survival rate after 6 years of activity equal to 59.1%.

[6]The authors used a sample of 22 countries (14 European, 6 Latin American, United States, and Canada) and found that the correlation between entry and exit rates across industries in 1990 was positive and significant in the majority of cases (Bartelsman et al., 2004: 21, Table 6).

entry and exit rates, in particular over short time intervals. On the contrary, entry and exit rates are positively and significantly correlated and market "churning" emerges as a common feature of industrial dynamics across different sectors and different countries. This means that economic sectors are characterized by a fringe of firms operating at a suboptimal scale where the likelihood of survival is particularly low and where "*revolving door*" firms are continuously entering and exiting the market.

Obviously, industry-specific characteristics such as scale economies and the endowment of innovative capabilities (Audretsch, 1991; Agarwal and Audretsch, 2001) exert a significant impact on entry, exit, and the likelihood of survival of newborn firms. For example, in industries characterized by a higher minimum efficient scale (MES), small newborn firms face higher costs, which are likely to push them out of the market within a short period after start-up (Lotti and Santarelli, 2004). Therefore, in many sectors new firm start-ups may simply originate what has correctly been called "turbulence" (a term first introduced by Beesley and Hamilton, 1984; see also Caves, 1998; Baptista and Karaöz, 2011). By the same token, larger start-ups characterized by an initial size close to the MES should result into higher survival rates (see Section 4.2.1).

By the same token, new firm formation may be more or less conducive to technological upgrading and industry growth, according to the different sectors in which it occurs. For instance, "new technology-based firms" (NTBFs; see Acs and Audretsch, 1990; Colombo *et al.*, 2004) in advanced manufacturing and ICT services certainly play a different role compared with small-sized start-ups in traditional sectors.[7] Therefore, in some sectors, the "creative destruction" role of new firm formation may be dominant compared with simple "turbulence," while the opposite may hold in other sectors.

These considerations concerning the role of the industrial structure are particularly relevant for the DCs, where the dominant role of traditional and low-tech sectors renders turbulence more likely and the presence of progressive entrepreneurs an exception. Indeed, Schumpeter (1934, 1939) himself makes it clear that the entry of new firms is due to a majority of imitators and a tiny minority of leaders (innovators). According to Baumol (2005), "replicative" entrepreneurs are those who start a firm similar to already-existing businesses; indeed, when considering gross entry across all economic sectors, we encounter a huge multitude of replicators and very few innovative entrepreneurs (innovators). This is explicitly recognized and discussed by Baumol (2010), who states that "...in reality, the vast majority of all entrepreneurs appear to be of the replicative variety" (Baumol, 2010: 18). Moreover,

---

[7]However, even in the innovative sectors the degree of uncertainty inherent in new knowledge dictates that only those new firms that prove to be viable grow rapidly, while other attempts that turn out not to be viable stagnate and may ultimately imply exit from the market (Audretsch and Thurik, 2000).

even among the innovative entrepreneurs, radical innovations are very rare: "Casual empiricism indicates that the bulk of the novelties such entrepreneurs introduce are only slightly better 'mousetraps'" (Baumol, 2010: 50). In contrast with the "apologia" that tends to identify entrepreneurship with innovation, Baumol correctly points out that innovative entrepreneurs are the exceptions (the so-called "superstars," see Baumol *et al.*, 2009), while most new firm founders belong to what Schumpeter called the "cluster of followers."

These considerations at the macroeconomic and sectoral levels imply that it will be extremely interesting to look at the microeconomic variety characterizing new entrants.[8] In fact, as in many other fields of economics, "heterogeneity" (Dosi, 1988; Dosi *et al.*, 1995) is a crucial feature in explaining the start-up of new firms, the variability in their chances of survival, their different post-entry performances, and therefore their extremely diverse potential to affect productivity growth and economic development. The next section is devoted to developing this microeconomic perspective, with the aim of investigating the individual characteristics of newborn firm founders and discussing the related empirical evidence.

3. The microeconomic drivers of entrepreneurship

In this section, we attempt to give an account of the different drivers of entrepreneurship, moving from the microeconomic context (Section 3.1), to the individual/personal characteristics of the entrepreneurial agents (Section 3.2).

3.1 Progressive versus regressive determinants of entry

In the textbook view originally put forward by Mansfield (1962), a queue of well-informed potential entrepreneurs is supposed to be waiting outside the market, and the expected level of profit is considered the trigger factor determining entry (also Orr, 1974; Khemani and Shapiro, 1986).

In addition, according to more recent studies in this stream of literature, new firm formation may be triggered not only by profit expectations but also by other pull factors such as economic growth and high innovative potential (Acs and Audretsch, 1989a,b; Geroski, 1995).

Moreover, again according to a conventional IO textbook approach, entry can be hindered on the one hand by exogenous entry barriers such as the amount of the initial investment to proxy the MES (Geroski and Schwalbach, 1991) or the presence of bureaucratic entry regulations (Djankov *et al.*, 2002; Klapper *et al.*, 2006) and on the other hand by endogenous entry barriers such as R&D and advertising expenditures (Sutton, 1991; Arauzo-Carod and Segarra-Blasco, 2005).

---

[8]See also Santarelli and Vivarelli (2002, 2007) and Vivarelli (2007: Chap. 1).

However, the main limitation of the IO approach is that it focuses on market mechanisms and may obscure the decision-making process at the level of the individual[9] (Winter, 1991), thus underestimating the factors behind the entrepreneur's motivation in starting a new business. Indeed, some 20th-century authors such as Knight (1921), Schumpeter (1934, 1939) and Oxenfeldt (1943) drew attention to the characteristics of the founder of a new firm. Following their contributions, we are aware that important individual determinants may act as push factors and be related both to environmental circumstances and the potential founder's personal characteristics.

For instance, the specific local/sectoral labor market plays an important role given that the majority of new founders (approximately two out of three of them) were previously employed/located in the same geographical area and the same sector, the rest being young people in their first job experience or ex-entrepreneurs and founders moving in from an outside region (Vivarelli, 1991; Storey, 1994; Cressy, 1996; Arrighetti and Vivarelli, 1999; Shane, 2000; Klepper, 2001; Helfat and Lieberman, 2002; Stam, 2007). Individuals starting a new firm in the same sector and the same region as they were previously employed/located in are more likely to be characterized by a deeper understanding of firm organization in that specific sector and of the inner and "relational" features of the business environment in which the new firm will operate (Storey, 1994).[10] Therefore, entrepreneurship is strongly characterized by sectoral and locational inertia, thus turning out as a phenomenon affected by a significant persistence (Fritsch and Mueller, 2007).[11]

Within this framework, new firm formation can be modeled as an income choice based on a comparison between the wage earned in the previous job and the expected profit as an entrepreneur starting a new business in the same sector and in the same geographical area (Creedy and Johnson, 1983; Vivarelli, 1991, 2004; Foti and Vivarelli, 1994; Audretsch, 1995; Geroski, 1995; Reynolds, 1997; for the DCs, see Lévesque and Shepherd, 2004). Contrary to the textbook approach, in self-employment theory, the foundation of a new firm is therefore not fostered by absolute profitability, but by the difference between expected profits and current

---

[9]In the conventional approach, entrepreneurship is generally measured as the number of new firms relative to the size of the existing population of businesses in a given industry (Acs, 2006). In contrast, if the individual "push factors" are taken into account fully, new firms have to be related to the labor force (for further discussion, see Vivarelli, 2007; Santarelli et al., 2009).

[10]Indeed, what the founder of a new firm knows and can do is related to what (s)he learned in the organization by which (s)he was formerly employed (Cooper, 1985; Colombo and Grilli, 2005).

[11]Investigating the link between entrepreneurship and economic geography is beyond the scope of the present work; however, for the association between new firm formation and regional development, see Glaeser (2007); Klepper (2007); Fritsch and Schroeter (2011); for the analysis of the spatial distribution of entrepreneurship, see Glaeser and Kerr (2009); Glaeser et al. (2010); for a recent and detailed survey on these subjects, see Frenken et al. (2011).

local wages in the same sector, taking into account the surrounding environmental conditions and the risk differential between the two occupational alternatives (Kihlstrom and Laffont, 1979; Parker, 1997; Cressy, 2006; Klepper, 2009). This means that entry may have a counter-cyclical component and may well be induced by industrial restructuring and decreasing real wages rather than by buoyant demand expectations and an appropriate endowment of entrepreneurial capabilities (Highfield and Smiley, 1987; Hamilton, 1989).[12]

Pushing this argument further, founding a new firm may be an alternative to uncertain future career prospects, or even represents an "escape from unemployment" (Oxenfeldt, 1943; Evans and Leighton, 1990; Storey, 1991, 1994). The empirical evidence suggesting the important role of job losses in fostering entry is indeed quite robust (Storey and Jones, 1987; Santarelli *et al.*, 2009). Using a panel of Italian data, Audretsch and Vivarelli (1995, 1996) found that job losses represent an important "push factor" in spurring new firm formation at the regional level (together with other factors such as the local industrial structure and the presence of agglomeration and external economies). At the end of the 1990s, in UK the incidence of people starting a firm not because of a market opportunity but just because they had no better choice was ~22% (Small Business Service, 2001: 6). Likewise, unemployment has been found to be one of the most important determinants of "latent" entrepreneurship in the stagnating Japanese economy of the second half of the 1990s (Masuda, 2006).[13]

Thus, entry may be determined by a set of different environmental factors including some "progressive" determinants such as profitability and promising technological opportunities, and also "regressive" determinants such as low wages and the actual condition of being (or the fear of becoming) unemployed. In determining new firm formation, these environmental drivers interact with the potential entrepreneur's personal traits (see next section).

3.2 The personal characteristics of the entrepreneur

New firm founders differ with regard to characteristics such as previous work experience, family tradition, financial status, and personal motivation. To start with,

---

[12]For instance, Foti and Vivarelli (1994) found confirmation of the "self employment" model, showing that entry rates are significantly correlated with the income gap between expected profits and current wages in Italian local labor markets.

[13]In a series of my previous studies using different Italian datasets (Vivarelli and Audretsch, 1998; Arrighetti and Vivarelli, 1999; Vivarelli, 2004), the state of actual unemployment or an impending state of unemployment were never found to be a top crucial motivation in determining the decision to start a new business. However, although rather low in the average rankings, the motivation "escape from unemployment" emerged as being quite important in ~15–20% of the examined cases (see also Thurik *et al.*, 2008, for a study where the role of unemployment in fostering start-ups and the possible job creation effect of new firms are simultaneously considered).

the founder of a new firm is heavily influenced by his/her own background, with particular reference to his/her previous job experience; as already discussed in the previous section, on the one hand, the importance of previous job experience explains sectoral inertia in entrepreneurship, while on the other hand, the loss of (or the fear of losing) the previous job may trigger the start-up of a new business as an "escape from unemployment" (Storey, 1982; Johnson, 1986; Bates, 1990; Reynolds *et al.*, 2001; Vivarelli, 2007).

Among the personal characteristics of the founder, family background is also singled out as a key factor by those econometric estimates that explain new firm formation as an act of self-employment (Evans and Leighton, 1989; Blanchflower and Oswald, 1998; Hout and Rosen, 2000; Reynolds *et al.*, 2001; Chlosta *et al.*, 2012). For instance, in a recent article, Burke *et al.* (2008) studied a cohort of British individuals born in March 1958, discovering that self-employed fathers, as well as fathers who are managers of small firms, tend to encourage entrepreneurship among their sons and daughters. The role of the family background in fostering entrepreneurship has been proved in the DCs as well; for instance, Djankov *et al.* (2006a,b; 2007) have shown that entrepreneurs in China, Russia, and Brazil are much more likely to have family members who are entrepreneurs as well as childhood friends who became entrepreneurs, suggesting that the family and the social environment play an important role in entrepreneurship.

Another important stream of literature has investigated the impact of financial constraints on business start-ups, mostly following on from the work by Fazzari *et al.* (1988). For instance, Evans and Jovanovic (1989) found that the initial level of assets strongly influences the probability of self-employment (Blanchflower and Oswald, 1998; Cabral and Mata, 2003; Hurst and Lusardi, 2004; Kan and Tsai, 2006). Other studies have examined the probability of transition to self-employment after an unexpected financial gain, such as a lottery prize, a windfall gain, or a job bonus. Interestingly, these studies almost invariably found that the exogenous arrival of new financial resources increases the probability of starting up a company (Holtz-Eakin *et al.*, 1994; Lindh and Ohlsson, 1996). The fact that wealth, inheritance, and windfall gains spur entrepreneurship suggests that business start-ups are often underfinanced (Parker, 2004). Therefore, since most new companies need external capital, differences in the ability of capital markets to select and finance the most promising entrepreneurial projects may lead to important differences in the level and quality of entrepreneurship across countries, with DCs obviously suffering a disadvantage in this respect (see Kerr and Nanda, 2011; for an extensive discussion, see below: Sections 4.1 and 4.2.2).

Other studies show that non-economic personal factors may turn out to be even more important than environmental variables such as profit expectations, entry barriers, conditions of the local labor, and capital markets. For instance, the potential entrepreneur seems to be strongly influenced by specific psychological attitudes, such as a desire to be independent, a search for autonomy in the workplace, an aspiration

to full exploitation of previous job experience and acquired ability, and a desire to be socially useful and to acquire improved social status (Creedy and Johnson, 1983; Evans and Leighton, 1990; Vivarelli, 1991, 2004; Blanchflower and Meyer, 1994; Blanchflower and Oswald, 1998; Zacharakis *et al.*, 2000).[14]

Since new firms are founded on the basis of both objective economic pull factors (such as profitability and industry growth) and personal, subjective, and non-economic push factors including defensive drivers, one could hypothesize that some of the observed entries are simply due to "entry mistakes" (Cabral, 1997; Geroski and Mazzucato, 2001), resulting in early failure, turbulence, and churning (see previous section).

While entry mistakes conflict with a conventional approach in which potential entrants are driven by rational expectations based on expected profits,[15] they can be understood more easily by taking into account the fact that potential entrepreneurs may well be affected by overconfidence, generating excess of entry, which in turn leads to infant mortality and entrepreneurial disillusion (see Dosi and Lovallo, 1998; for an experimental economics exercise, see Camerer and Lovallo, 1999). Parker (2006) discusses both the psychology literature that gives reasons for expecting entre-preneurs to be especially prone to unrealistic overoptimism and previous empirical evidence showing that optimism is significantly and positively associated with the propensity to be an entrepreneur (see, both for theoretical models and empirical evidence on the subject: De Meza, 2002; Åstebro, 2003; Coelho *et al.*, 2004). Conversely, Caliendo *et al.* (2010) show that a lower risk aversion is not connected at all with entrepreneurial survival.

If one takes into account the (often dominant) psychological attitudes discussed earlier (especially a desire to be independent, a desperate search for autonomy caused by frustration in the previous job, a fear of becoming unemployed), entry mistakes and excess entry can be further justified. In fact, the observed occurrence of these

---

[14]Questionnaire analyses conducted by the author (Vivarelli and Audretsch, 1998: 492; Arrighetti and Vivarelli, 1999: 933; Vivarelli, 2004: 44) invariably show that a search for independence and a desire to fully exploit his/her own skills are ranked first among the determinants of new firm formation. On the other hand, textbook determinants such as profit expectations and the search for a market niche turn out to be important, but ranked below the personal/psychological motiv-ations. Interestingly enough, innovation always lags behind, with a minority of firms ($\sim$15–20%) indicating the desire to introduce product and/or process innovation as a fundamental reason for starting a new independent economic activity.

[15]However, some theoretical models of entry such as those proposed by Jovanovic (1982) and Hopenhayn (1992) managed to combine maximising behaviour with the occurrence of "entry mistakes" which can later be detected by rational learning processes (see Section 4.1). On the contrary, entry mistakes are not easily conceivable within the "Austrian" approach (Kirzner, 1973, 1997) where profit opportunities are not likely to be recognized by all the potential entre-preneurs, but only by the "alerted" ones which are able to recognise latent, overlooked opportunities.

entry mistakes suggests an attitude which can be defined as a "try and see" bet. In this view, new founders, mainly driven by a personal search for autonomy and job satisfaction, "visit" a sectoral niche searching for business chances; later, they find out whether their entry decision was right or wrong and may decide to exit. Accordingly, market churning, turbulence, and early failure, observed at a more aggregate level of analysis (see Section 2), emerge as normal and expected features of industrial dynamics.

These findings lead to the conclusion that several heterogeneous entry processes are simultaneously at play in the economy and that "opportunity entrepreneurs," those bringing about innovation and economic growth, should be distinguished from "revolving door" start-ups doomed to early failure and generating only precarious and temporary jobs.

Obviously enough, this distinction is *a fortiori* crucial when we focus on the DCs, where "entrepreneurship" and "self-employment" often generate informal and very transient activities not so very different from "disguised unemployment." In the following section, an attempt will be made to correlate entrepreneurial characteristics with new firms' actual potentials in terms of economic growth and job creation; special attention will be devoted to evidence from the DCs, when available.

4. The post-entry performances of entrepreneurial firms

Since entrepreneurs are driven by both progressive and regressive determinants and are intrinsically heterogeneous, the post-entry performance of newborn firms and their eventual contribution to economic development may be very diverse as well. In what follows, after a theoretical discussion dealing with the macroeconomic constraints to new firms' growth (see Section 4.1), we survey those empirical microeconomic studies that have shown how different "ex-ante" characteristics may affect the post-entry performance of newborn firms (Section 4.2).

4.1 Entrepreneurial learning, market failures, and institutional constraints

From a theoretical point of view, Lucas (1978) was the first to put forward a theory of the size distribution of firms based on the relative endowment of entrepreneurial talents.[16] However, the first author to represent the post-entry evolution of newborn firms formally was Boyan Jovanovic in his celebrated contribution in *Econometrica* (1982). Jovanovic proposed a Bayesian model of noisy selection, according to which efficient firms grow and survive, whereas inefficient ones decline and fail. In particular, in Jovanovic's model of *passive learning*, firms are initially endowed with

---

[16]For a recent extension of Lucas' model incorporating the possibility that entrepreneurial talents may be acquired by watching other entrepreneurs already active in the market, see Guiso and Schivardi (2005).

unknown, time-invariant characteristics (i.e. ex-ante efficiency parameters); ex-post the prior distribution is updated as evidence comes in and some entrepreneurs discover that they are more efficient than others. Thus, in any period each firm has to decide its strategy: whether to exit, continue at the same size, grow in size, or reduce its productive capacity.

One can easily see that Jovanovic's model is perfectly consistent with a world where founders are quite heterogeneous in terms of both general and specific characteristics, entry mistakes can easily occur, entry can be originated by a "try and see" bet, and early failures are rather common (see previous section; see also Lotti and Santarelli, 2004).

The same line of argument applies to more recent models of *active learning*. While Hopenhayn (1992) first introduced innovation as an exogenous process, Ericson and Pakes (1995) assumed that all the decisions taken by firms were meant to maximize the expected discounted value of the future net cash flow, conditional on the current information set. In their model, a firm knows its own characteristics and those of its competitors, along with the future distribution of industry structure, conditional on the current structure. Therefore, Jovanovic's assumptions concerning small industry size and product homogeneity are relaxed in Ericson and Pakes' model, in which new entries may either adjust in size to the MES level of the "core" of the industry or choose/find a niche within which the likelihood of survival is relatively high even though the firm does not grow fast. In a subsequent work, Pakes and Ericson (1998) examined two cohorts of firms from Wisconsin in the retail and the manufacturing industries and found that the structure of the former industry was compatible with Jovanovic's passive learning model, while that of the latter was compatible with their model of active exploration. In both models, optimal behavior generates a set of "stopping states" which can imply early exit from the market.

Characterized by either passive or active learning, founders in these theoretical models are heterogeneous as far as their capabilities and beliefs are concerned and committed to recursive decisions with early exit always being an available and rational option. In fact, because of either entry mistakes or learning failures, newborn firms may cease in the early phases of their life cycles.

However, in addition to the *subjective* learning process, the growth of a newborn firm is affected by a larger set of *objective* variables which have to do with the general macroeconomic and sectoral business climate and with a wide range of constraining factors (Acs and Audretsch, 1990; Geroski and Schwalbach, 1991; Audretsch, 1995). On the whole, previous research has proved that market failures, the infrastructure endowment, and the regulatory and legal conditions are important determinants of the post-entry performance of newborn firms. While this is true even for the developed countries, "a fortiori" these institutional constraints may play a crucial role in the DCs, with a larger impact moving from the middle-income to the low-income DCs.

In more detail, DCs are characterized by several market failures that severely hamper the post-entry growth potentialities of entrepreneurial activities. As extensively discussed in Biggs and Srivastava (1996), Tybout (2000), Hoskisson *et al.* (2000) and Aterido *et al.* (2009), imperfections in the credit and financial markets, a non-transparent regulatory environment, the lack of infrastructures, and the high incidence of bribing are important hindering factors affecting firm's growth in DCs. Although the institutional constraints to entrepreneurship are not the core issue of this article, it is worth discussing them in some detail in the context of DCs, where the entry of new firms faces additional environmental challenges in comparison with what occurs in the more advanced economies.

Starting with capital markets, Rajan and Zingales (1998) and Beck *et al.* (2008) clearly show that firms in financially dependent industries grow much faster in financially developed countries; in contrast, new small firms in DCs are credit and equity rationed in the majority of cases because their financial markets are underdeveloped (see Nugent and Nabli, 1992; Banerjee and Newman, 1993; Ayyagari *et al.*, 2008; Lian *et al.*, 2011 and see Section 4.2.2 below). In fact, capital markets in DCs are characterized by: (i) a lower depth (measured, for instance, by a low ratio of bank deposits to GDP; see Paravisini, 2008, for the case of Argentina; Banerjee and Duflo, 2004, for the case of India); (ii) by a lower level of competition between financial intermediaries generating misallocation of funds (see Banerjee *et al.*, 2003, studying misallocation of capital in India; Cole, 2009, discussing agricultural credit in India); and (iii) by higher information asymmetries due to institutional and infrastructural underdevelopment (see Klapper and Love, 2011, for a general discussion, while Canales and Nanda, 2008, discuss lending to small businesses in Mexico).[17]

By the same token, a non-transparent regulatory environment with regard to labor market rules, taxation, red tape procedures, property rights, and bankruptcy laws is particularly harmful to firms' growth in DCs and may be fatal for young entrepreneurial activities (Goedhuys and Sleuwaegen, 1999; Sleuwaegen and Goedhuys, 2002; Beck *et al.*, 2005; Chen and Puttitanun, 2005; Lee *et al.*, 2011). For instance, in a recent study, Ardagna and Lusardi (2010), dealing with GEM microdata from 37 countries including eight DCs, showed that stringent entry regulation, soft contract enforcement rules, and labor market rigidities play an important role in hindering entrepreneurship and in strengthening the adverse impact of risk aversion.

Moreover, apart from the legal and institutional drawbacks characterizing a developing country, a prominent role is also played by the wide diffusion of bribing, which may abort any chance of growth of a fragile new entrepreneurial activity.[18] For

---

[17]A possible solution for credit-rationed potential entrepreneurs is to rely on networks and "social capital," in order to identify financing subjects such as venture capitalists (Batjargal and Liu, 2004).

[18]Aterido *et al.* (2009: 10), using evidence from the World Bank Enterprise Surveys, show that 42% of firms declare they have paid bribes, with an average amount paid of 1.5% of sales.

instance, Fisman and Svensson (2007), using data collected from 126 Ugandan firms, show that a 1% increase in the bribery rate implies a reduction of 3% in firm sales growth. Obviously, corruption may amplify the hampering role of credit constraints (see above) when it involves bank officials responsible for screening the entrepreneurial initiatives (Beck *et al.*, 2005).

Finally, the lack of an adequate infrastructural endowment including roads and railways, basic utilities such as electricity and water supply, and ICT networks is singled out by the literature as a significant shortcoming in preventing young and small firms in DCs from growing (Aterido *et al.*, 2009; Goedhuys and Sleuwaegen, 2010;[19] Ghani *et al.*, 2011b).

Having discussed regulatory, institutional, and infrastructural conditions, the focus of this study is rather on those microeconomic and personal characteristics that *coeteris paribus* may have a role in determining the post-entry performance of entrepreneurial new firms; the following section discusses this issue.

4.2 Empirical microeconomic studies

From an empirical perspective, a relatively recent stream of literature has focused on the post-entry performance of firms and has investigated the survival, growth, and early exit of newborn firms (among the early studies, see, for instance: Reid, 1991; Boeri and Cramer, 1992; Baldwin and Rafiquzzaman, 1995). Within this field of research, it is possible to analyze the relationship between the ex-ante features of entry on the one hand, and both survival and, conditional on survival, the post-entry performance of newborn firms on the other. The following subsections are devoted to investigating what have been found to be the most important "ex-ante" characteristics affecting the post-entry performance of new businesses.[20]

4.2.1 Firm's size and age

Many studies have discovered a positive relationship between start-up size and survival (see Audretsch and Mahmood, 1995; Mata *et al.*, 1995; Agarval and Audretsch, 2001; for more controversial results, see Audretsch *et al.*, 1999a,b). Since entry implies sunk costs (Sutton, 1991) and generally occurs at a scale that is lower than the MES, a larger entry size is a signal of commitment and self-confidence and makes both the occurrence of an entry mistake (see Section 3.2) and the risk of a failure due to diseconomies of scale less likely.

---

[19]The authors, using data from the World Bank Investment Climate Survey covering 947 manufacturing SMEs in 11 Sub-Saharan countries, show that firms with their own transport facilities and their own website exhibit higher growth rates, measured in terms of employment creation.

[20]In so doing, we link two streams of literature—the one devoted to entry determinants and the one devoted to drivers of post-entry performance—that are often seen as two separate avenues of research.

On the other hand, a vast number of papers have found (conditional on survival) a negative relationship between start-up size and post-entry growth, thus rejecting Gibrat's Law (Gibrat, 1931; Hall, 1987; Hart and Oulton, 1996; Sutton, 1997; Goddard *et al.*, 2002; Lotti *et al.*, 2003, 2009; Bottazzi and Secchi, 2006). This evidence means that smaller entrants with a suboptimal entry size and with a higher risk of early failure (see above) must grow in order to survive and reach the MES as soon as possible.[21]

Consistently, a firm's age turns out to be positively correlated with survival and negatively with growth (Evans, 1987; Dunne and Hughes, 1994; Yasuda, 2005; Calvo, 2006). This is not surprising and is consistent with the learning theories discussed in Section 4.1: experienced, mature firms are more able to deal with market dynamics and so more likely to survive; however, having already reached (or being very close to) the MES, they do not have to grow very fast.

While all the studies cited so far concern developed countries, the evidence from DCs is similar. For instance, Das (1995), dealing with the Indian computer industry, found a significant negative relationship between firm growth and initial firm size; McPherson (1996), in a study on five southern African countries, detected a significant negative link between firm growth and both the firm's size and age; Goedhuys and Sleuwaegen (2000) and Sleuwaegen and Goedhuys (2002), respectively, analyzing 141 and 129 manufacturing firms in Côte d'Ivoire, also found negative correlations between firm growth and both firm size and age; finally, running GMM-SYS panel estimates covering census-based Ethiopian manufacturing firms over the period 1996–2003, Bigsten and Gebreeyesus (2007) showed how the negative relationship between size and age on the one hand and firms' employment growth on the other is significant and robust to sample selection and unobserved firm heterogeneity.[22]

4.2.2 Credit rationing

Credit constraints and lack of financial capital in general should limit the rate of entry of new businesses and their likelihood of survival and rate of growth (Xu, 1998; Becchetti and Trovato, 2002; Carpenter and Petersen, 2002; Aghion *et al.*, 2007). However, some recent studies have shown that the role of credit rationing has been somewhat overemphasized and that entrepreneurial saving plans may be able to

---

[21]However, initial size may display a non-linear impact on post-entry growth; for instance, Stam and Wennberg (2009) find an overall negative relationship between start-up size and firm's growth, however shifting to positive once the top 10% fastest growing firms are considered. By the same token, micro-startups, which display a size well below a minimum threshold, either early exit the industry or grow significantly less than the average (Bonaccorsi and Giannangeli, 2010; Stam *et al.*, 2012: 98–99).

[22]Consistent econometric outcomes can also be found in Mead and Liedholm (1998), Gunning and Mengistae (2001), Bigsten and Söderbom (2006), and Coad and Tamvada (2012).

overcome borrowing constraints (Cressy, 1996, 2000; Parker, 2000; Hurst and Lusardi, 2004). The risk of overstating the hindering role of credit constraints is particularly high in questionnaire analyses where nascent or newborn entrepreneurs are asked to list their main difficulties in starting and/or running a new firm; in fact, they have the self-indulgent tendency to indicate a lack of external financial support as the main *cause* of their problems, while in most cases this is just a *symptom* of more fundamental deficiencies internal to the firm.

At any rate, as already discussed in Section 4.1, new entrepreneurial initiatives in the DCs are credit-rationed in the majority of cases due to lack of collateral, informational asymmetries, and largely imperfect local capital markets. For instance, Goedhuys and Sleuwaegen (2010), in a study investigating 947 small and medium entrepreneurial firms in several manufacturing firms in 11 Sub-Saharan African countries,[23] report that financial constraints are singled out as the major obstacle (from between 11 alternatives) to a firm's growth in 5 countries out of 11. Consistently, in the previously cited article on Côte d'Ivoire by Goedhuys and Sleuwaegen (2000), the authors find that a lack of collateral significantly hampers firms' growth (ibidem: 139). In this framework, the successful diffusion of microfinance in DCs can be seen as a way of reducing information and transaction costs in screening and financing small and new businesses (Yunus, 1999, 2002; Fogel *et al.*, 2011).

4.2.3 Education and human capital

Not surprisingly, it has been demonstrated that education and human capital have an important role in fostering entry, in increasing the likelihood of survival of new firms, and in improving their post-entry economic performance (Bates, 1990; Gimeno *et al.*, 1997; Acs *et al.*, 2007).

On the one hand, human capital aspects turn out to be particularly important in fostering entrepreneurship in the high-tech sectors; for instance, Baptista and Mendonça (2010) show that local access to knowledge and human capital significantly affect entry by knowledge-based firms. By the same token, the location of new firms can be decided having in mind the possibility to benefit from human capital spillovers: this is one of the reasons why high-tech firms tend to be founded in the proximity of university and research centers (see Audretsch *et al.*, 2005; to examine the impact of the establishment of new universities in fostering knowledge-intensive firms' entry rates, see Baptista *et al.*, 2011).

On the other hand, human capital plays a role that goes beyond facilitating the entry of new firms: for instance, Geroski *et al.* (2010) show that the impact on firm survival of initial human capital formation is both important and nearly permanent. Once again, human capital seems to be particularly crucial with regard to

---

[23]The authors extracted their firm-level data from the World Bank Investment Climate Survey.

knowledge-intensive firms: for example, Colombo and Grilli (2010) point out that the founder's human capital is a key driver of post-entry growth of high-tech start-ups (Arvanitis and Stucki, 2012).

However, while the role of human capital in improving the post-entry performance of new firms is recognized, the issue of whether specific rather that general human capital (Becker, 1964) is the crucial asset is more controversial. Some authors have found that specific rather than generic skills are better predictors of improved post-entry performance, especially as far as NTBFs are concerned (Almus and Nerlinger, 1999; Colombo and Grilli, 2005; Balconi and Fontana, 2011; Ganotakis, 2012). In this context, specificity refers to education in economic/managerial and technical/scientific fields and to previous work experience in technical and commercial functions within the same industry: in a recent work, Baptista et al. (2012) show that business owners with previous managerial- and industry-specific experience are more likely to survive and present better sales performance.

However, Lazear (2004, 2005) theorized that an individual who is well endowed in a variety of fields, a "Jack-of-all trades," would have a higher probability of becoming an entrepreneur, since entrepreneurs have to manage different people and tasks and so have to be well-versed in a variety of abilities. As a consequence, this theory also predicts that nascent entrepreneurs should plan a human capital investment strategy which is well balanced across different competences and fields of expertise. Using cross-section analyses, both Lazear (2005) and Wagner (2003) found that students who ended up as entrepreneurs had studied a much more varied curriculum than those who ended up working for others. Overall, these researchers conclude that accumulation of a balanced skill-mix (i.e. general human capital) causally involves entrepreneurship and above-average post-entry performance (in contrast with the positive role of specific human capital discussed earlier).[24]

Turning our attention to DCs and taking into account that in this context entrepreneurship and self-employment are often carried out within the informal sector of the economy, the impact of education turns out to be controversial. In fact, higher education, either general or specific, augments the managerial capabilities which are necessary to run a business enterprise, and also increases the outside option for salaried employment in the formal sector of the economy. This is probably the reason why Van der Sluis et al. (2005), in their comprehensive survey of the previous literature focusing on DCs, found that in the majority of cases education lowers the likelihood of entering self-employment as contrasted with wage-earning

---

[24]Some recent papers cast doubt on this conclusion. In fact, individual unobservable characteristics may indeed simultaneously affect both skill accumulation and occupational choice, i.e. individuals innately well versed in a variety of fields would have the incentive both to accumulate more balanced skills and to become entrepreneurs. If such is the case, no causal relationship would be detectable between the spread of knowledge across different fields and the choice to become an entrepreneur (Åstebro, 2005; Silva, 2007; Åstebro and Thompson, 2011).

employment. In contrast, Goedhuys and Sleuwaegen (2000), running logit estimations on data concerning the owners of 141 manufacturing firms in Côte d'Ivoire, found that the probability of being an entrepreneur is strongly stimulated by both apprenticeship and formal education, with the positive effect of education steadily increasing going from lower to higher levels of education. Similarly, Ghani et al. (2011b), using cross-sectional establishment-level surveys of manufacturing and services companies in Indian districts, conclude that higher education in a local area significantly increases the supply of entrepreneurs.[25] However, this relationship becomes non-significant when the informal manufacturing sector is taken into account. This is an interesting outcome and confirms the fact that education may render the choice of being a wage earner as preferable to entering self-employment in the informal sector (often characterized by "defensive entrepreneurship," see Sections 2 and 3[26]).

On the other hand, evidence concerning the relationship between education and the post-entry performance of new businesses in DCs is uncontroversial and consistent with what has been found using data from richer countries. For instance, Van der Sluis et al. (2005) conclude that an additional year of schooling raises entrepreneurial income by an average of 5.5%; by the same token, McPherson (1996) found that in Botswana and Zimbabwe business owners who have completed secondary school run faster-growing firms than those proprietors with no schooling; finally, Goedhuys and Sleuwaegen (2000, 2010), using data, respectively, from Côte d'Ivoire and from 11 Sub-Saharan African countries, found unequivocal evidence that formal education of the entrepreneur positively affect a firm's growth performance, respectively, measured in terms of the growth rates of sales and employment (in both studies, the greatest effect on growth is found for entrepreneurs holding a university degree).[27]

4.2.4 Previous job

As pointed out in Section 3.1, entrepreneurship is characterized by sectoral and geographical inertia; far from being a disadvantage, persistence in entrepreneurship generates above-the-average post-entry performance, since past experience in the same sector and in the same area is often a signal of better skills and informational advantages (see, for instance, Roberts et al., 2011).

---

[25]This outcome is consistent with similar evidence recently found for the developed countries, see Doms et al. (2010) and Glaeser et al. (2010).

[26]By the same token, Nafziger and Terrell (1996), using evidence from India, found that higher education of the founding entrepreneur reduces firm survival, indicating the importance of outside opportunities in paid wage employment within the formal sector.

[27]By the same token, Ligthelm (2011) found that business management skills were one of the strongest predictor of survival among small informal firms in South Africa

Indeed, Michelacci and Silva (2007) found that the fraction of entrepreneurs who set up their businesses in the area where they were born was significantly higher than the corresponding share for dependent workers and, more importantly, that firms created by locals were bigger, more valuable, more capital-intensive, and better financed than their counterparts created by non-locals. The authors interpreted their findings by arguing that local entrepreneurs can on an average better exploit the economic and financial opportunities available in the region where they were born. By the same token, Dahl and Sorenson (2012) found that companies perform better, survive longer, and generate higher profits when located in regions in which their founders have lived longer, this effect being similar in size to that associated to previous experience in the same sector.

Following this line of reasoning, both spinoffs (entrepreneurs leaving a mother firm to found a new business[28]) and "serial entrepreneurs" (founders who have previously run other businesses) may have an advantage compared with *de novo* entrepreneurs. For example, Hirakawa *et al.* (2010), using microdata from Brazil over the 1995–2001 period, found that spinoffs are characterized by larger entry sizes (see Section 4.2.1) and lower exit rates than new firms not generated by a parent company. Similarly, the role of past experience and path dependence is confirmed by the fact that serial entrepreneurs are more likely to replicate the success of their past companies than single-venture entrepreneurs (Gompers *et al.*, 2006[29]).

Turning our attention to a managerial perspective, new founders who had previously been employed as top managers in the same sector and who had better access to relevant information are expected to exhibit better post-entry business performance (for an empirical validation of these relationships, see Cooper *et al.*, 1994; Cressy, 1996; Arrighetti and Vivarelli, 1999; Lee and Tsang, 2001; Shane, 2001; Vivarelli, 2004).

Some studies confirm the positive link between previous job experience and a firm's post-entry performance in the case of DCs too. For example, McPherson (1996) found a positive relationship between annual employment growth and previous experience of the founder in similar economic activities for entrepreneurial firms in Swaziland and Botswana, while Vijverberg (1991) and Goedhuys and Sleuwaegen (2000), both studying Côte d'Ivoire, found that job experience

---

[28]For instance, Sørensen and Phillips (2011) argue that work experience in the prior firm shapes both the entrepreneur's competence and his/her commitment to the entrepreneurial role. However, while competence and information inherited from the mother firm provide an initial advantage, parental influence may generate inertia and resistance to change, unless the new company is able to create its unique competitive identity (Ferriani *et al.*, 2012).

[29]Obviously, serial entrepreneurs can benefit from a stock of human capital cumulated during their previous experience (see Section 4.2.3; Amaral *et al.*, 2011); interestingly enough, Parker (2013) finds that previous failure does not necessarily decrease the possibility of success in a subsequent entrepreneurial venture, meaning that entrepreneurial learning is important in any case.

previously acquired in the same industry both increases the likelihood of founding a new business and contributes to a firm's better performance.

4.2.5 Innovation

If the underlying motivation to start a new firm is linked to innovative projects, then a better post-entry performance should be expected. Empirically, this seems to be the case. In fact, a propensity for innovation emerges in general as a firm's growth driver (see, for instance, Freel, 2000; Coad and Rao, 2008; Altindag *et al.*, 2011; Corsino and Gabriele, 2011) and specifically as a positive predictor of survival and an above-the-average post-entry performance of newborn firms (Esteve-Pèrez *et al.*, 2004; Raspe and Van Oort, 2008). For instance, Arrighetti and Vivarelli (1999), after applying a factor analysis to a sample of 147 Italian spinoffs, found that innovative factors[30] were significantly correlated with post-entry performance; their subsequent cluster analysis also revealed that the innovative group was more likely to have a better post-entry performance (Vivarelli and Audretsch, 1998).

Consistently with the discussion earlier, Cefis and Marsili (2006) found convincing evidence of an "innovation premium" in survival time: using Pavitt's (1984) taxonomy, they showed that young firms (<4 years old) in the "science-based" and "specialized supplier" sectors were characterized by significantly higher chances of survival than firms in other sectors (ibidem, Fig. 1 and Table 2). More specifically, Cefis and Marsili (2005) have shown that being an innovator enhanced the expected time of survival by 11% compared with non-innovator counterparts.

Turning our attention to the DCs, the middle-income ones are mainly importing innovation produced elsewhere in the global economy, while the low-income ones are often completely excluded from any innovative process (Lall, 1992, 2004; Robbins and Gindling, 1999; Keller, 2002; Robbins, 2003; Lee and Vivarelli, 2006; Srholec, 2011). In both contexts, the role of endogenous R&D and local NTBFs[31] is extremely limited and so it is not surprising that very few studies try to link innovation with entrepreneurship within a DC context.

One exception is Santarelli and Tran (2011), who studied entrepreneurship in Vietnam using a panel of regional-level data for 61 provinces over the period 2000–2008; among other outcomes, the authors found that an innovative climate (proxied by the share of technical/R&D personnel in the province) significantly and positively affects the regional net entry rate. Moving to post-entry performance, in the previously cited work by Goedhuys and Sleuwaegen (2010), the innovative capability

---

[30]Related both to the innovative motivations of the founder and to his/her previous innovative experience in the mother firm.

[31]Rather, R&D-based initiatives in the DCs are often the outcome of the outsourcing by the United States, European, and Japanese multinationals; see Moncada-Paternò-Castello *et al.* (2011). However, some recent literature points out the emergence of a purely domestic innovation capacity in the DCs (Chen and Puttitanun, 2005; Van der Boor *et al.*, 2012).

(proxied by a dummy for the introduction of new products) was found to increase a firm's annual employment growth by 2% on an average.

4.2.6 Escape from unemployment

As far as unemployment (or the fear of becoming unemployed, see Section 3.1) is concerned, the literature points out two stylized facts: (i) those who have entered self-employment from unemployment exit to a higher extent than those who have entered from paid employment (see Carrasco, 1999; Pfeiffer and Reize, 2000; for a slightly more optimistic evidence, Caliendo and Kritikos, 2010) and (ii) new founders who were formerly unemployed have on an average lower economic outcomes and a lower propensity to contribute positively to job creation.[32]

For instance, in the previously cited article by Arrighetti and Vivarelli (1999), the authors found that defensive motivations such as concern about future career developments and the fear of becoming unemployed were predictors of a below-the-average post-entry evolution (ibidem: 936). By the same token, Andersson and Wadensjö (2007), using a large sample of Swedish-born men who were self-employed in the period 1999–2002 and who were either wage earners, unemployed or inactive in 1998, showed that those who were previously unemployed systematically had lower incomes compared with those who were previously wage earners; moreover, they also found that income from self-employment declines with the number of days spent in unemployment and that previously unemployed entrepreneurs are significantly more likely to be "solo" entrepreneurs, i.e. to have no employees.

As regards DCs, the literature is extremely scarce.[33] However, Wang (2006) found convincing evidence that unemployment had fostered start-ups in Taiwan over the period 1986–2001; in contrast, in the previously cited work by Santarelli and Tran (2011), no significant impact of the unemployment rate on new firm formation in Vietnam was found.

4.2.7 The role of ethnic minorities

While most of the empirical literature on entrepreneurship is biased toward evidence from the industrialized countries, a particular driver of new firm formation is instead mainly studied with regard to DCs:[34] the role played by ethnic minorities in

---

[32]While the "escape from unemployment" can be seen as a "bad predictor" in terms of economic performance, it may still play a social mitigating role in situation where unemployment is unsustainable.

[33]This is unfortunate since, as discussed in Section 1, "defensive and necessity entrepreneurs" appear to make up the bulk of self-employment in DCs, with activities ranging from street vending and small retailing to traditional personal services.

[34]One exception are the studies showing how in the United States black-owned firms show lower survival rates and worse performances than White- or Asian-owned firms (Fairlie and Robb, 2008; Jarmin and Krizan, 2010).

generating above-the-average rates of entry and better post-entry performance among newborn firms. The basic hypothesis is that alien minorities may have an entrepreneurial advantage based on their opportunity to exploit their minority community networks to overcome important hindrances to entrepreneurship (see Section 4.1), such as information asymmetries, high transaction costs, credit constraints, and difficulties in accessing available inputs and technologies (Kilby, 1983; Biggs and Shah, 2006). In addition, from a sociological point of view, an ethnic minority, characterized by common traits such as language, culture, and religion, generates trust, social cohesion, and emulation, which are all factors that favor entrepreneurial behavior (Greif, 1993; Hobday, 1995; Iyer and Schoar, 2010). Finally, a minority group may also be affected by a feeling of insecurity and frustration (in comparison with a dominant group), which encourages members to seek economic success and a better social status (Elkan, 1988).[35]

Empirical evidence is generally consistent with the hypotheses just discussed; for instance, Ramachandran and Shah (1999)—using firm level data from Kenya, Tanzania, Zambia, and Zimbabwe and after controlling for firm size and age, various personal characteristics of the entrepreneurs, as well as sector and country differences—found that Asian and European firms start larger and grow faster than indigenously owned African firms. By the same token, Hewitt and Wield (1997) show that Asian businesses in the Tanzanian manufacturing sector have a better access to sources of technology than indigenous companies. Consistently, in the previously cited study by Goedhuys and Sleuwaegen (2000), the dummy variable "non-African" significantly and positively affects the likelihood of becoming an entrepreneur in Côte d'Ivoire. Similarly, when analyzing a randomly selected sample of 296 Ethiopian SMEs, Mengistae (2001) finds that companies owned by the indigenous minority group of the Gurage perform better than average in the country; in particular, new businesses start larger and then grow faster. More recently, Goedhuys and Sleuwaegen (2010; see above) show that the Asian dummy (equal to 1 for entrepreneurs of Lebanese, Indian, Middle Eastern, or other Asian origin) turns out to be positive and significant in affecting firms' growth in Sub-Saharan Africa.

5. Conclusions and policy implications

"Entrepreneurship" is an extremely complex and somewhat controversial phenomenon. From a microeconomic point of view, far from being solely the result of the entrepreneurial "creative destruction" process proposed by Schumpeterian advocates, any set of entrepreneurial ventures can be seen as a rather heterogeneous

---

[35]This mechanism can work up to a given threshold; indeed to belong to a socioeconomically excluded group may decrease the likelihood of successfully found a new firm (this is the case, for instance, of the caste system in India, see Monsen et al., 2012).

aggregate where real and innovative entrepreneurs are to be found together with passive followers, overoptimistic gamblers, and even escapees from unemployment. From a macroeconomic point of view, progressive new firm formation can generate permanent economic growth, while defensive and regressive start-ups originate only temporary positive effects, and ultimately market turbulence.

Therefore, both scholars and policy makers should bear some important caveats in mind.

First, the evidence discussed in this study calls for a more rigorous definition of the terminology adopted, since the generic term "entrepreneur" may include a population of very heterogeneous agents. Adopting a provocative stance, one could eliminate the word "entrepreneur" and substitute it with the term "founder," which is more general and free from overoptimistic implications.

Second, since founders are heterogeneous and may make "entry mistakes," most new firms are doomed to early failure; this type of entry is not conducive to technological renewal and economic growth, but simply to an excess of entries, market churning, and turbulence. In both developed and developing countries, policy makers should discourage this type of venture.

Third, determinants of entry vary from progressive factors such as demand and profit expectations, innovative potentialities, entrepreneurial human capital built through specific education, family environment, and previous job experience, to misleading and regressive factors such as overconfidence, a desire to be independent, and a fear of unemployment.

Fourth, "ex-ante" features may be predictors of survival chances and post-entry business performance. For instance, a larger size, the absence of credit constraints, and a larger informational set allowing "active learning" can be considered as positive predictors of a higher likelihood of survival, while a previous state of unemployment or the absence of an adequate incubator background can be seen as predictors of early failure. By the same token, an endowment of high-level education and human capital, the relevance of the innovative motivation, and previous experience in managerial and entrepreneurial roles have been shown to be correlated with above-the-average post-entry business performance.

Policy makers need to be able to disentangle these drivers and encourage a selected subsample of potential entrepreneurs. In the specific case of DCs, as well as a larger start-up size, higher education, longer previous job experience, and innovative capabilities, the fact of belonging to an entrepreneurial ethnic minority (see Section 4.2.7) can be seen as an additional preferential trait when deciding how to target a policy addressed at sustaining progressive new firm formation.

In this context, the widespread diffusion of general, "erga omnes" entry subsidies as policy instruments in both the developed and the DCs is unfortunate.[36] More

---

[36]As correctly pointed out by Shane (2009: 41): "Policy makers believe a dangerous myth. They think that start-up companies are a magic bullet that will transform depressed economic regions,

specifically, an "erga omnes" entry subsidy may well generate both "deadweight" and "substitution" effects. The first occur when the beneficiary of the subsidy is a new-born entrepreneurial firm which would have survived and grown in any case; the second when the incentive supports a revolving door firm which would have exited the market in absence of the subsidy. In the latter case, the distortion is larger, since the subsidy is not only a social waste but also implies the substitution of a potentially more efficient entrant by a subsidized inefficient firm. In fact, in the presence of an incentive, the newborn firm adjusts its own capacity not on the basis of either passive or active learning (see Section 4.1), but as a consequence of the artificial support provided by the received subsidy. Once the subsidy expires, the "bad entrepreneur" becomes aware of his/her inefficiency and leaves the market, canceling the temporary effect of the policy in terms of economic growth and job creation. If such is the case, public support induces a substitution effect against more efficient potential entrants and delays the exit of less-efficient newborn firms.

Therefore, "umbrella" subsidies should be discarded in favor of selective and targeted measures addressed to the more promising potential entrepreneurs, such as those characterized by a superior human capital or by interesting and feasible innovative ideas.

Moreover, subsidies should be conditional on an obvious and unambiguous occurrence of a market failure which prevents otherwise efficient firms from becoming established and growing. This means that in the developed nations, entry subsidies should be allowed only in exceptional situations, when market mechanisms fail to select the better and faster growing enterprises (this might be the case, for instance, of credit-rationed innovative initiatives).

Obviously, the case of DCs is intrinsically different, since market and regulatory constraints are much more diffused and severe, ranging from extreme financial rationing to lack of property rights and bribing (see Section 4.1). In this context, any entrepreneurial policy should consider a priority to solve the market, institutional, and informational failures which prevent potential entrepreneurs from starting a new business (see Acs and Virgill, 2009, see Section IV.1; Naudé, 2010, see Section 3.3). For instance—as already mentioned in Section 4.2.2—a proper microfinance scheme may overcome those financial constraints that are so asymmetric and often perverse in many DCs; by the same token, labor market reforms may be crucial in obtaining a good match between revealed entrepreneurial abilities and actual entrepreneurial opportunities.

However, notwithstanding the particularly adverse conditions faced by potential entrepreneurs in DCs, policy makers in these countries should also be parsimonious

---

generate innovation, create jobs. This belief is flawed because the typical start-up is not innovative, creates few jobs, and generates little wealth." For a very recent study showing that selective support policy schemes have a larger impact than automatic "erga omnes" subsidies on the employment growth of NTBFs, see Colombo et al. (2012).

in proposing direct entry subsidies which should be only addressed to those entrepreneurs proved to be pushed by "progressive," rather than "defensive," drivers.

References

Acs, Z. J. (2006), 'New firm formation and the region: empirical results from the United States,' in E. Santarelli (ed.), *Entrepreneurship, Growth and Innovation: The Dynamics of Firms and Industries.* Springer: New York, pp. 106–133.

Acs, Z. J. (2008), 'Foundations of high impact entrepreneurship,' *Foundations and Trends in Entrepreneurship*, **4**, 535–620.

Acs, Z. J., C. Armington and T. Zhang (2007), 'The determinants of new-firm survival across regional economies: the role of human capital stock and knowledge spillover,' *Papers in Regional Science*, **86**, 367–391.

Acs, Z. J. and D. B. Audretsch (1989a), 'Small-firm entry in US manufacturing,' *Economica*, **56**, 255–265.

Acs, Z. J. and D. B. Audretsch (1989b), 'Births and firm size,' *Southern Economic Journal*, **56**, 467–475.

Acs, Z. J. and D. B. Audretsch (1990), *Innovation and Small Firms.* MIT Press: Cambridge, MA.

Acs, Z. J., D. B. Audretsch, P. Braunerhjelm and B. Carlsson (2005), 'Growth and entrepreneurship: an empirical assessment,' *Discussion Papers on Entrepreneurship, Growth and Public Policy*, no. 3205, Jena, Max Planck Institute of Economics.

Acs, Z. J., D. B. Audretsch, P. Braunerhjelm and B. Carlsson (2012), 'Growth and entrepreneurship,' *Small Business Economics*, **39**, 289–300.

Acs, Z. J., S. Desai and J. Hessels (2008a), 'Entrepreneurship, economic development, and institutions,' *Small Business Economics*, **31**, 219–234.

Acs, Z. J., S. Desai and L. F. Klapper (2008b), 'What does entrepreneurship data really show?' *Small Business Economics*, **31**, 265–281.

Acs, Z. and P. Mueller (2008), 'Employment effects of business dynamics: mice, gazelles and elephants,' *Small Business Economics*, **30**, 85–100.

Acs, Z. J. and L. Szerb (2010), 'The Global Entrepreneurship Index (GEINDEX),' *Foundations and Trends in Entrepreneurship*, **5**, 341–435.

Acs, Z. J. and L. Szerb (2012), *Global Entrepreneurship & Development Index 2012.* Elgar: Cheltenham.

Acs, Z. and N. Virgill (2009), 'Entrepreneurship in the developing countries,' *Jena Economic Research Paper no. 2009–23.* Max Planck Institute of Economics: Jena.

Agarval, R. and D. B. Audretsch (2001), 'Does entry size matter? The impact of the life cycle and technology on firm survival,' *Journal of Industrial Economics*, **49**, 21–43.

Aghion, P., T. Fally and S. Scarpetta (2007), 'Credit constraints as a barrier to the entry and post-entry growth of firms,' *Economic Policy*, **22**, 731–779.

Aghion, P. and P. Howitt (1992), 'A model of growth through creative destruction,' *Econometrica*, **60**, 323–351.

Aghion, P. and P. Howitt (1997), *Endogeneous Growth Theory*. MIT Press: Cambridge, MA.

Almus, M. and E. A. Nerlinger (1999), 'Growth of new technology-based firms: which factors matter?' *Small Business Economics*, **13**, 141–154.

Altindag, E., C. Zehir and A. Z. Acar (2011), 'Strategic orientations and their effects on firm performance in turkish family owned firms,' *Eurasian Business Review*, **1**, 18–36.

Amaral, A., R. Baptista and F. Lima (2011), 'Serial entrepreneurship: impact of human capital on time to re-entry,' *Small Business Economics*, **37**, 1–21.

Andersson, P. and E. Wadensjö (2007), 'Do the unemployed become successful entrepreneurs?' *International Journal of Manpower*, **28**, 604–626.

Arauzo-Carod, J. M. and A. Segarra-Blasco (2005), 'The determinants of entry are not independent of start-up size: some evidence from Spanish manufacturing,' *Review of Industrial Organization*, **27**, 147–165.

Ardagna, S. and A. M. Lusardi (2010), 'Explaining international differences in entrepreneurship: the role of individual characteristics and regulatory constraints,' in J. Lerner and A. Schoar (eds), *International Differences in Entrepreneurship*. University of Chicago Press: Chicago, pp. 17–62.

Arrighetti, A. and M. Vivarelli (1999), 'The role of innovation in the postentry performance of new small firms: evidence from Italy,' *Southern Economic Journal*, **65**, 927–939.

Arvanitis, S. and T. Stucki (2012), 'What determines the innovation capability of firm founders?' *Industrial and Corporate Change*, **21**, 1049–1084.

Åstebro, T. (2003), 'The return to independent invention: evidence of risk-seeking, extreme optimism or skewness loving?' *Economic Journal*, **113**, 226–239.

Åstebro, T. (2005), *Does it Pay To Be a Jack-of-all-trades?*, Rotman School of Management. University of Toronto, *mimeo*: Toronto.

Åstebro, T. and P. Thompson (2011), 'Entrepreneurs: Jacks of all trades or hobos?' *Research Policy*, **40**, 637–669.

Aterido, R., M. Hallward-Driemeier and C. Pagés (2009), 'Big constraints to small firms' growth? Business environment and employment growth across firms,' *World Bank Policy Research Working Paper 5032*. World Bank: Washington DC.

Audretsch, D., E. Lehmann and S. Warning (2005), 'University spillovers and new firm location,' *Research Policy*, **34**, 1113–1122.

Audretsch, D. B. (1991), 'New-firm survival and the technological regime,' *Review of Economics and Statistics*, **73**, 441–450.

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

Audretsch, D. B. and M. C. Keilbach (2004), 'Entrepreneurship and regional growth: an evolutionary interpretation,' *Journal of Evolutionary Economics*, **14**, 605–616.

Audretsch, D. B. and M. C. Keilbach (2011), 'Knowledge spillover entrepreneurship, innovation and economic growth,' in D. B. Audretsch, O. Falck, S. Heblich and A. Lederer (eds), *Handbook of Research on Innovation and Entrepreneurship*. Elgar: Cheltenham, pp. 245–269.

Audretsch, D. B., M. C. Keilbach and E. E. Lehmann (2006), *Entrepreneurship and Economic Growth*. Oxford University Press: Oxford.

Audretsch, D. B. and T. Mahmood (1995), 'New firm survival: new results using a hazard function,' *Review of Economics and Statistics*, **77**, 97–103.

Audretsch, D. B., E. Santarelli and M. Vivarelli (1999a), 'Start up size and industrial dynamics: some evidence from Italian manufacturing,' *International Journal of Industrial Organization*, **17**, 965–983.

Audretsch, D. B., E. Santarelli and M. Vivarelli (1999b), 'Does start up size influence the likelihood of survival?,' in D. Audretsch and R. Thurik (eds), *Innovation Industry Evolution and Employment*. Cambridge University Press: Cambridge, pp. 280–296.

Audretsch, D. B. and A. R. Thurik (2000), 'Capitalism and democracy in the 21st century: from the managed to the entrepreneurial economy,' *Journal of Evolutionary Economics*, **10**, 17–34.

Audretsch, D. B. and M. Vivarelli (1995), 'New firm formation in Italy,' *Economics Letters*, **48**, 77–81.

Audretsch, D. B. and M. Vivarelli (1996), 'Determinants of new-firm startups in Italy,' *Empirica*, **23**, 91–105.

Ayyagari, M., A. Demirgüç-Kunt and V. Maksimovic (2008), 'How important are financing constraints? The role of finance in the business environment,' *World Bank Economic Review*, **22**, 483–516.

Ayyagari, M., A. Demirgüç-Kunt and V. Maksimovic (2011), 'Small vs. young firms across the world: contribution to employment, job creation, and growth,' *World Bank Policy Research Working Paper 5631*. World Bank: Washington DC.

Balconi, M. and R. Fontana (2011), 'Entry and innovation: an analysis of the fabless semiconductor business,' *Small Business Economics*, **37**, 87–106.

Baldwin, J. R. and P. K. Gorecki (1987), 'Plant creation versus plant acquisition: the entry process in Canadian manufacturing,' *International Journal of Industrial Organization*, **5**, 27–41.

Baldwin, J. R. and P. K. Gorecki (1991), 'Firm entry and exit in the Canadian manufacturing sector,' *Canadian Journal of Economics*, **24**, 300–323.

Baldwin, J. R. and W. Gu (2011), 'Firm dynamics and productivity growth: a comparison of the retail trade and manufacturing sectors,' *Industrial and Corporate Change*, **20**, 367–395.

Baldwin, J. R. and M. Rafiquzzaman (1995), 'Selection versus evolutionary adaptation learning and post-entry performance,' *International Journal of Industrial Organization*, **13**, 501–522.

Banerjee, A. and E. Duflo (2004), 'Do firms want to borrow more? Testing credit constraints using a directed lending program,' Banerjee, *CEPR Discussion Papers no. 4681*, London, CEPR.

Banerjee, A., E. Duflo and K. Munshi (2003), 'The (Mis)allocation of capital,' *Journal of the European Economic Association*, **1**, 484–494.

Banerjee, A. V. and A. F. Newman (1993), 'Occupational choice and the process of development,' *Journal of Political Economy*, **101**, 274–298.

Baptista, R., V. Escária and P. Madruga (2008), 'Entrepreneurship, regional development and job creation: the case of Portugal,' *Small Business Economics*, **30**, 49–58.

Baptista, R. and M. Karaöz (2011), 'Turbulence in growing and declinig industries,' *Small Business Economics*, **36**, 249–270.

Baptista, R., F. Lima and J. Mendonça (2011), 'Establishment of higher education institutions and new firm entry,' *Research Policy*, **40**, 751–760.

Baptista, R., F. Lima and J. Mendonça (2012), 'Human capital and the performance of firms over time *mimeo*,' SSRN: http://ssrn.com/abstract=2009673 or http://dx.doi.org/10.2139/ssrn.2009673.

Baptista, R. and J. Mendonça (2010), 'Proximity to knowledge sources and the location of knowledge-based start-ups,' *Annals of Regional Science*, **45**, 5–29.

Baptista, R. and M. T. Preto (2011), 'New firm formation and employment growth: regional and business dynamics,' *Small Business Economics*, **36**, 419–442.

Bartelsman, E., J. Haltiwanger and S. Scarpetta (2004), 'Microeconomic evidence of creative destruction in industrial and developing countries,' *World Bank Policy Research Working Paper 3464*. World Bank: Washington DC.

Bartelsman, E., S. Scarpetta and F. Schivardi (2005), 'Comparative analysis of firm demographics and survival: evidence from micro-level sources in OECD countries,' *Industrial and Corporate Change*, **14**, 365–391.

Bates, T. (1990), 'Entrepreneur human capital inputs and small business longevity,' *Review of Economics and Statistics*, **72**, 551–559.

Batjargal, B. and M. Liu (2004), 'Entrepreneurs' access to private equity in China: the role of social capital,' *Organization Science*, **15**, 159–172.

Baumol, W. J. (1990), 'Entrepreneurship: productive, unproductive and destructive,' *Journal of Political Economy*, **98**, 893–921.

Baumol, W. J. (2005), 'Entrepreneurship and invention: toward their microeconomic value theory,' *AEI-Brookings Joint Center for Regulatory Studies*, related publication n.05-38, Washington, Joint Center.

Baumol, W. J. (2010), *The Microtheory of Innovative Entrepreneurship*. Princeton University Press: Princeton, NJ.

Baumol, W. J., M. Schilling and E. Wolff (2009), 'The superstars inventors and entrepreneurs: how were they educated?' *Journal of Economic and Management Strategy*, **18**, 711–728.

Becchetti, L. and G. Trovato (2002), 'The determinants of growth for small and medium sized firms. the role of availability of external finance,' *Small Business Economics*, **19**, 291–306.

Beck, T., A. Demirgüç-Kunt, L. Laeven and R. Levine (2008), 'Finance, firm size and growth,' *Journal of Money, Credit and Banking*, **40**, 1379–1405.

Beck, T., A. Demirgüç-Kunt and V. Maksimovic (2005), 'Financial and legal constraints to growth: does firm size matter?' *Journal of Finance*, **60**, 131–177.

Becker, G. S. (1964), *Human Capital: A Theoretical and Empirical Analysis*. Columbia University Press: New York.

Beesley, M. E. and R. T. Hamilton (1984), 'Small firms' seedbed role and the concept of turbulence,' *Journal of Industrial Economics*, **33**, 217–231.

Biggs, T. and M. K. Shah (2006), 'African SMEs, networks and manufacturing performance,' *Journal of Banking and Finance*, **30**, 3043–3066.

Biggs, T. and P. Srivastava (1996), 'Structural aspects of manufacturing in sub-Saharan: findings from a seven country enterprise survey,' *World Bank Discussion Paper 346*. World Bank: Washington DC.

Bigsten, A. and M. Gebreeyesus (2007), 'The small, the young and the productive: determinants of manufacturing firm growth in Ethiopia,' *Economic Development and Cultural Change*, **55**, 813–840.

Bigsten, A. and M. Söderbom (2006), 'What have we learned from a decade of manufacturing enterprise surveys in Africa,' *World Bank Research Observer*, **21**, 241–265.

Blanchflower, D. and B. Meyer (1994), 'A longitudinal analysis of young entrepreneurs in Australia and the United States,' *Small Business Economics*, **6**, 1–20.

Blanchflower, D. and A. Oswald (1998), 'What makes an entrepreneur?' *Journal of Labor Economics*, **16**, 26–60.

Boeri, T. and U. Cramer (1992), 'Employment growth, incumbents and entrants: evidence from Germany,' *International Journal of Industrial Organization*, **10**, 545–566.

Bonaccorsi, A. and S. Giannangeli (2010), 'One or more growth processes? Evidence from new Italian firms,' *Small Business Economics*, **35**, 137–152.

Bosma, N., E. Stam and V. Schutjens (2011), 'Creative destruction and regional productivity growth: evidence from the Dutch manufacturing and services industries,' *Small Business Economics*, **36**, 401–418.

Bottazzi, G. and A. Secchi (2006), 'Gibrat's law and diversification,' *Industrial and Corporate Change*, **15**, 847–875.

Braunerhjelm, P. (2011), 'Entrepreneurship, innovation and economic growth: interdependencies, irregularities and regularities,' in D. B. Audretsch, O. Falck, S. Heblich and A. Lederer (eds), *Handbook of Research on Innovation and Entrepreneurship*. Elgar: Cheltenham, pp. 161–213.

Braunerhjelm, P., Z. J. Acs, D. B. Audretsch and B. Carlsson (2010), 'The missing link: knowledge diffusion and entrepreneurship in endogenous growth,' *Small Business Economics*, **34**, 105–125.

Burke, A., F. FitzRoy and M. Nolan (2008), 'What makes a die-hard entrepreneur? Beyond the 'employee or entrepreneur' dichotomy,' *Small Business Economics*, **31**, 93–115.

Cabral, L. (1997), 'Entry mistakes, centre for economic policy research,' *Discussion Paper No. 1729*. CEPR: London.

Cabral, L. and J. Mata (2003), 'On the evolution of the firm size distribution: facts and theory,' *American Economic Review*, **93**, 1075–1090.

Caliendo, M., F. Fossen and A. Kritikos (2010), 'The impact of risk attitudes on entrepreneurial survival,' *Journal of Economic Behavior & Organization*, **76**, 45–63.

Caliendo, M. and A. Kritikos (2010), 'Start-ups by the unemployed: characteristics, survival and direct employment effects,' *Small Business Economics*, **35**, 71–92.

Calvo, J. L. (2006), 'Testing Gibrat's law for small, young and innovating firms,' *Small Business Economics*, **26**, 117–123.

Camerer, C. and D. Lovallo (1999), 'Overconfidence and excess entry: an experimental approach,' *American Economic Review*, **89**, 306–318.

Canales, R. and R. Nanda (2008), *Harvard Business School Working Papers n. 08-101*. Harvard Business School: Cambridge, MA.

Carlsson, B., Z. J. Acs, D. B. Audretsch and P. Braunerhjelm (2009), 'Knowledge creation, entrepreneurship, and economic growth: a historical review,' *Industrial and Corporate Change*, **18**, 1193–1229.

Carpenter, R. E. and B. C. Petersen (2002), 'Is the growth of small firms constrained by internal finance?' *Review of Economics and Statistics*, **84**, 298–309.

Carrasco, R. (1999), 'Transitions to and from self-employment in Spain,' *Oxford Bulletin of Economics and Statistics*, **61**, 315–341.

Carree, M. and A. R. Thurik (2006), 'Understanding the role of entrepreneurship for economic growth,' in M. Carree and A. R. Thurik (eds), *The Handbook of Entrepreneurship and Economic Growth*. Cheltenham: Elgar, pp. ix–xix.

Carree, M., A. Van Stel, A. R. Thurik and S. Wennekers (2007), 'The relationship between economic development and business ownership revisited,' *Entrepreneurship and Regional Development*, **19**, 281–291.

Caves, R. E. (1998), 'Industrial organization and new findings on the turnover and mobility of firms,' *Journal of Economic Literature*, **36**, 1947–1982.

Cefis, E. and O. Marsili (2005), 'A matter of life and death: innovation and firm survival,' *Industrial and Corporate Change*, **14**, 1167–1192.

Cefis, E. and O. Marsili (2006), 'Survivor: the role of innovation in firm's survival,' *Research Policy*, **35**, 626–641.

Chen, Y. and T. Puttitanun (2005), 'Intellectual property rights and innovation in developing countries,' *Journal of Development Economics*, **78**, 474–493.

Chlosta, S., H. Patzelt, S. B. Klein and C. Dormann (2012), 'Parental role models and the decision to become self-employed: the moderating effect of personality,' *Small Business Economics*, **38**, 121–138.

Coad, A. and R. Rao (2008), 'Innovation and firm growth in high-tech sectors: a quantile regression approach,' *Research Policy*, **37**, 633–648.

Coad, A. and J. P. Tamvada (2012), 'Firm growth and barriers to growth among small firms in India,' *Small Business Economics*, **39**, 383–400.

Coelho, M. P., D. de Meza and D. Reyniers (2004), 'Irrational exuberance, entrepreneurial finance and public policy,' *International Tax and Public Finance*, **11**, 391–417.

Cole, S. (2009), 'Fixing market failures or fixing elections? Agricultural credit in India,' *American Economic Journal: Applied Economics*, **1**, 219–250.

Colombo, M. G., M. Delmastro and L. Grilli (2004), 'Entrepreneurs' human capital and the start-up size of new technology-based firms,' *International Journal of Industrial Organization*, **22**, 1183–1211.

Colombo, M. G. and L. Grilli (2005), 'Founders' human capital and the growth of new technology-based firms: a competence-based view,' *Research Policy*, **34**, 795–816.

Colombo, M. G. and L. Grilli (2010), 'On growth drivers of high-tech start-ups: exploring the role of founders' human capital and venture capital,' *Journal of Business Venturing*, **25**, 610–626.

Colombo, M. G., L. Grilli and S. Giannangeli (2012), 'Public subsidies and the employment growth of high-tech start-ups: assessing the impact of selective and automatic support schemes,' *Industrial and Corporate Change*, forthcoming, doi: 10.1093/icc/dts037.

Cooper, A. C. (1985), 'The role of incubator organizations in the founding of growth-oriented firms,' *Journal of Business Venturing*, **1**, 75–86.

Cooper, A. C., F. J. Gimeno-Gascon and C. Y. Woo (1994), 'Initial human capital and financial capital as predictors of new venture performance,' *Journal of Business Venturing*, **9**, 371–396.

Corsino, M. and R. Gabriele (2011), 'Product innovation and firm growth: evidence from the integrated circuit industry,' *Industrial and Corporate Change*, **20**, 29–56.

Creedy, J. and P. S. Johnson (1983), 'Firm formation in manufacturing industry,' *Applied Economics*, **15**, 177–185.

Cressy, R. (1996), 'Are business start-ups debt-rationed?' *Economic Journal*, **106**, 1253–1270.

Cressy, R. (2000), 'Credit rationing or entrepreneurial risk aversion? An alternative explanations for the Evans and Jovanovic finding,' *Economics Letters*, **66**, 235–240.

Cressy, R. (2006), 'Why do most firms die young?' *Small Business Economics*, **26**, 103–116.

Dahl, M. S. and O. Sorenson (2012), 'Home sweet home: entrepreneurs' location choices and the performance of their ventures,' *Management Science*, **58**, 1059–1071.

Das, S. (1995), 'Size, age and firm growth in an infant industry: the computer hardware industry in India,' *International Journal of Industrial Organization*, **13**, 111–126.

Dejardin, M. (2011), 'Linking net entry to regional economic growth,' *Small Business Economics*, **36**, 443–460.

De Meza, D. (2002), 'Overlending?' *Economic Journal*, **112**, F17–F31.

Djankov, S., R. La Porta, F. Lopez-de-Silanes and A. Shleifer (2002), 'The regulation of entry,' *Quarterly Journal of Economics*, **117**, 1–37.

Djankov, S., Y. Qian, G. Roland and E. Zhuravskaya (2006a), 'Entrepreneurship in China and Russia compared,' *Journal of the European Economic Association*, **4**, 352–365.

Djankov, S., Y. Qian, G. Roland and E. Zhuravskaya (2006b), 'Who are China's entrepreneurs?' *American Economic Review*, **96**, 348–352.

Djankov, S., Y. Qian, G. Roland and E. Zhuravskaya (2007), 'What makes a successful entrepreneur? Evidence from Brazil,' *Working Paper w0104*. Center for Economic and Financial Research: Moscow, CEFIR.

Doms, M., E. Lewis and A. Robb (2010), 'Local labor force education, new business characteristics, and firm performance,' *Journal of Urban Economics*, **67**, 61–77.

Dosi, G. (1988), 'Sources, procedures and microeconomic effects of innovation,' *Journal of Economic Literature*, **26**, 1120–1171.

Dosi, G. and D. Lovallo (1998), 'Rational entrepreneurs or optimistic martyrs? Some considerations on technological regimes, corporate entries, and the evolutionary role of decision biases,' in R. Garud, P. Nayyar and Z. Shapiro (eds), *Foresights and Oversights in Technological Change*. Cambridge University Press: Cambridge, pp. 41–68.

Dosi, G., O. Marsili, L. Orsenigo and R. Salvatore (1995), 'Learning, market selection and the evolution of industrial structures,' *Small Business Economics*, **7**, 411–436.

Dunne, P. and A. Hughes (1994), 'Age, size, growth and survival: UK companies in the 1980s,' *Journal of Industrial Economics*, **42**, 115–140.

Dunne, T., M. J. Roberts and L. Samuelson (1988), 'Patterns of firm entry and exit in U. S. manufacturing industries,' *Rand Journal of Economics*, **19**, 495–515.

Dunne, T., M. J. Roberts and L. Samuelson (1989), 'The growth and failure of US manufacturing plants,' *Quarterly Journal of Economics*, **104**, 671–698.

Elkan, W. (1988), 'Entrepreneurs and entrepreneurship in Africa,' *World Bank Research Observer*, **3**, 171–188.

Ericson, R. and A. Pakes (1995), 'Markov-perfect industry dynamics: a framework for empirical work,' *Review of Economic Studies*, **62**, 53–82.

Esteve-Pérez, S., A. Sanchis and J. A. Sanchis (2004), 'The determinants of survival of Spanish manufacturing firms,' *Review of Industrial Organization*, **25**, 251–273.

Evans, D. S. (1987), 'The relationship between firm growth, size, and age: estimates for 100 manufacturing industries,' *Journal of Industrial Economics*, **35**, 567–581.

Evans, D. S. and B. Jovanovic (1989), 'An estimated model of entrepreneurial choice under liquidity constraints,' *Journal of Political Economy*, **97**, 808–827.

Evans, D. S. and L. S. Leighton (1989), 'Some empirical aspects of entrepreneurship,' *American Economic Review*, **79**, 519–535.

Evans, L. B. and L. S. Leighton (1990), 'Small business formation by unemployed and employed workers,' *Small Business Economics*, **2**, 319–330.

Fairlie, R. and A. Robb (2008), 'Why are Black-owned businesses less successful than White-owned businesses? The role of families, inheritances, and business human capital,' *Journal of Labor Economics*, **25**, 289–323.

Fazzari, S. M., R. G. Hubbard and B. C. Petersen (1988), 'Financing constraints and corporate investment,' *Brookings Papers on Economic Activity*, **115**, 695–713.

Ferriani, S., E. Garnsey and G. Lorenzoni (2012), 'Continuity and change in a spin-off venture: the process of reimprinting,' *Industrial and Corporate Change*, **21**, 1011–1048.

Fisman, R. and J. Svensson (2007), 'Are corruption and taxation really harmful to growth? Firm level evidence,' *Journal of Development Economics*, **83**, 63–75.

Fogel, K., K. Lee and W. McCumber (2011), 'Institutional impact on the outreach and profitability of microfinance organizations,' in D. B. Audretsch, O. Falck, S. Heblich and A. Lederer (eds), *Handbook of Research on Innovation and Entrepreneurship*. Elgar: Cheltenham, pp. 119–133.

Foster, L., J. Haltiwanger and C. Syverson (2008), 'Reallocation, firm turnover, and efficiency: selection on productivity or profitability?' *American Economic Review*, **98**, 394–425.

Foti, A. and M. Vivarelli (1994), 'An econometric test of the self-employment model: the case of Italy,' *Small Business Economics*, **6**, 81–93.

Freel, M. S. (2000), 'Do small innovating firms outperform non-innovators?' *Small Business Economics*, **14**, 195–210.

Frenken, K., E. Cefis and E. Stam (2011), 'Industrial dynamics and economic geography: a survey,' *Ecis Working Paper no. 11.07*. Eindhoven Centre for Innovation Studies.

Fritsch, M. (2011), 'The effect of new business formation on regional development—empirical evidence, interpretation, and avenues for further research,' *Jena Economic Research Papers no.2011-006*. Friedrich-Schiller-University: Jena.

Fritsch, M. and P. Mueller (2004), 'The effects of new business formation on regional development over time,' *Regional Studies*, **38**, 961–975.

Fritsch, M. and P. Mueller (2007), 'The persistence of regional new business formation activity over time. Assessing the potential of policy promotion programs,' *Journal of Evolutionary Economics*, **17**, 299–315.

Fritsch, M. and A. Schroeter (2011), 'Why does the effect of new business formation differ across regions?' *Small Business Economics*, **36**, 383–400.

Ganotakis, P. (2012), 'Founders' human capital and the performance of UK new technology based firms,' *Small Business Economics*, **39**, 495–515.

Geroski, P. A. (1995), 'What do we know about entry?' *International Journal of Industrial Organization*, **13**, 421–440.

Geroski, P. A., J. Mata and P. Portugal (2010), 'Founding conditions and the survival of new firms,' *Strategic Management Journal*, **31**, 510–529.

Geroski, P. A. and M. Mazzucato (2001), 'Modelling the dynamics of industry populations,' *International Journal of Industrial Organization*, **19**, 1003–1022.

Geroski, P. A. and J. Schwalbach (1991), *Entry and Market Contestability: An International Comparison*. Basil Blackwell: Oxford.

Ghani, E., W. R. Kerr and S. D. O'Connell (2011a), 'Promoting entrepreneurship, growth and job creation,' in E. Ghani (ed.), *Reshaping Tomorrow*. Oxford University Press: Delhi, Chapter 7.

Ghani, E., W. R. Kerr and S. D. O'Connell (2011b), 'Spatial determinants of entrepreneurship in India,' *NBER Working Paper 17514*. NBER: Cambridge (Mass.).

Ghani, E., W. R. Kerr and S. D. O'Connell (2011c), 'Who creates jobs?' *Economic Premises*, **70**, 1–7.

Gibrat, R. (1931), *Les Inegalites Economiques*. Librairie du Recueil Sirey: Paris.

Gimeno, J., T. Folta, A. Cooper and C. Woo (1997), 'Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms,' *Administrative Science Quarterly*, **42**, 750–783.

Glaeser, E., W. Kerr and G. Ponzetto (2010), 'Clusters of entrepreneurship,' *Journal of Urban Economics*, **67**, 150–168.

Glaeser, E. L. (2007), 'Entrepreneurship and the city,' *NBER Working Paper No. 13551*. NBER: Cambridge, MA.

Glaeser, E. L. and W. Kerr (2009), 'Local industrial conditions and entrepreneurship: how much of the spatial distribution can we explain?' *Journal of Economics & Management Strategy*, **18**, 623–663.

Goddard, J., J. Wilson and P. Blandon (2002), 'Panel tests of Gibrat's law for japanese manufacturing,' *International Journal of Industrial Organization*, **20**, 415–433.

Goedhuys, M. and L. Sleuwaegen (1999), 'Barriers to growth of firms in developing countries, evidence from Burundi,' in D. Audretsch and R. Thurik (eds), *Innovation, Industry Evolution and Employment*. Cambridge University Press: Cambridge, pp. 297–314.

Goedhuys, M. and L. Sleuwaegen (2000), 'Entrepreneurship and growth of entrepreneurial firms in Côte d'Ivoire,' *Journal of Development Studies*, **36**, 123–145.

Goedhuys, M. and L. Sleuwaegen (2010), 'High-growth entrepreneurial firms in Africa: a quantile regression approach,' *Small Business Economics*, **34**, 31–51.

Gompers, A., A. Kovner, J. Lerner and D. Scharfstein (2006), 'Skill vs. luck in entrepreneurship and venture capital: evidence from serial entrepreneurs,' *NBER Working Paper 12592*. NBER: Cambridge, MA.

Greif, A. (1993), 'Contract enforceability and economic institutions in early trade: the Maghribi traders' coalition,' *American Economic Review*, **83**, 525–548.

Grossman, G. and E. Helpman (1991), *Innovation and Growth in the World Economy*. Cambridge, MA: MIT Press.

Guiso, L. and F. Schivardi (2005), 'Learning to be an entrepreneur,' *CEPR Discussion Paper no. 5290*. CEPR: London.

Gunning, J. W. and T. Mengistae (2001), 'Determinants of African manufacturing investments: the microeconomic evidence,' *Journal of African Economies*, **10**, 48–80.

Hall, B. (1987), 'The relationship between firm size and firm growth in the US manufacturing sector,' *Journal of Industrial Economics*, **35**, 583–606.

Hamilton, R. T. (1989), 'Unemployment and business formation rates: reconciling time-series and cross-section evidence,' *Environment and Planning*, **21**, 249–255.

Hart, P. E. and N. Oulton (1996), 'Growth and size of firms,' *Economic Journal*, **106**, 1242–1252.

Hart, P. E. and N. Oulton (2001), 'Galtonian regression, company age and job generation 1986-95,' *Scottish Journal of Political Economy*, **48**, 82–98.

Helfat, C. E. and M. B. Lieberman (2002), 'The birth of capabilities: market entry and the importance of pre history,' *Industrial and Corporate Change*, **11**, 725–760.

Hewitt, T. and D. Wield (1997), 'Tanzanian networks, networks in Tanzanian industrialization,' *Science and Public Policy*, **24**, 395–404.

Highfield, R. and R. Smiley (1987), 'New business starts and economic activity: an empirical investigation,' *International Journal of Industrial Organization*, **5**, 51–66.

Hirakawa, O., M. A. Muendler and J. E. Rauch (2010), 'Employee spinoffs and other entrants: stylized facts from Brazil,' *International Growth Centre Working Paper 10/0879*. LSE: London.

Hobday, M. (1995), *Innovation in East Asia: The Challenge to Japan*. Elgar: Cheltenham.

Hobday, M. and F. Afonso de Barros Perini (2009), 'Latecomer entrepreneurship: a policy perspective,' in M. Cimoli, G. Dosi and J. E. Stiglitz (eds), *Industrial Policy and Development: The Political Economy of Capabilities Accumulation*. Oxford University Press: Oxford, Chapter 18.

Holtz-Eakin, D., D. Joulfaian and H. Rosen (1994), 'Sticking it out: entrepreneurial survival and liquidity constraints,' *Journal of Political Economy*, **102**, 53–75.

Hopenhayn, H. (1992), 'Entry, exit and firm dynamics in long run equilibrium,' *Econometrica*, **60**, 1127–1150.

Hoskisson, R. E., L. Eden, C. M. Lau and M. Wright (2000), 'Strategy in emerging economies,' *Academy of Management Journal*, **43**, 249–267.

Hout, M. and H. Rosen (2000), 'Self-employment, family background and race,' *Journal of Human Resources*, **35**, 670–692.

Hurst, E. and A. Lusardi (2004), 'Liquidity constraints, household wealth and entrepreneurship,' *Journal of Political Economy*, **112**, 319–347.

Ihrig, J. and K. S. Moe (2004), 'Lurking in the shadows: the informal sector and government policy,' *Journal of Development Economics*, **73**, 541–557.

Iyer, R. and A. Schoar (2010), 'Are there cultural determinants of entrepreneurship?,' in J. Lerner and A. Schoar (eds), *International Differences in Entrepreneurship*. University of Chicago Press: Chicago, pp. 209–240.

Jarmin, R. and C. J. Krizan (2010), 'Past experience and future success: new evidence on owner characteristics and firm performance,' *CES Discussion Papers 10-24*. U. S. Bureau of the Census—Center for Economic Studies: Washington.

Johnson, P. S. (1986), *New Firms: An Economic Perspective*. Allen & Unwin: London.

Johnson, P. S. (2005), 'Targeting firm births and economic regeneration in a lagging region,' *Small Business Economics*, **24**, 451–464.

Jovanovic, B. (1982), 'Selection and evolution of industry,' *Econometrica*, **50**, 649–670.

Kan, K. and W. D. Tsai (2006), 'Entrepreneurship and risk aversion,' *Small Business Economics*, **26**, 465–474.

Keller, W. (2002), 'Trade and the transmission of technology,' *Journal of Economic Growth*, **7**, 5–24.

Kerr, W. R. and R. Nanda (2011), 'Financing constraints and entrepreneurship,' in D. B. Audretsch, O. Falck, S. Heblich and A. Lederer (eds), *Handbook of Research on Innovation and Entrepreneurship*. Cheltenham: Elgar, pp. 88–103.

Khemani, R. S. and D. M. Shapiro (1986), 'The determinants of new plant entry in Canada,' *Applied Economics*, **18**, 1243–1257.

Kihlstrom, R. E. and J. J. Laffont (1979), 'A general equilibrium entrepreneurial theory of firm formation based on risk aversion,' *Journal of Political Economy*, **87**, 719–748.

Kilby, P. (1983), 'The role of alien entrepreneurs in economic development, an entrepreneurial problem,' *American Economic Review, Papers and Proceedings*, **73**, 107–111.

Kirzner, I. (1973), *Competition and Entrepreneurship*. University of Chicago Press: Chicago.

Kirzner, I. (1997), 'Entrepreneurial discovery and the competitive market process: an Austrian approach,' *Journal of Economic Literature*, **35**, 60–85.

Klapper, L., L. Laeven and R. G. Rajan (2006), 'Business regulations as a barrier to entrepreneurship,' *Journal of Financial Economics*, **82**, 591–629.

Klapper, L. and I. Love (2011), 'Entrepreneurship and development: the role of information asymmetries,' *World Bank Economic Review*, **25**, 1–8.

Klepper, S. (2001), 'Employee startups in high-tech industries,' *Industrial and Corporate Change*, **10**, 639–674.

Klepper, S. (2007), *The Geography of Organizational Knowledge*. mimeo. Carnegie Mellon University: Pittsburgh.

Klepper, S. (2009), 'Spinoffs: a review and synthesis,' *European Management Review*, **6**, 159–171.

Knight, F. H. (1921), *Uncertainty and Profit*. Houghton Mifflin: New York.

Koellinger, P. and A. R. Thurik (2012), 'Entrepreneurship and the business cycle,' *Review of Economics and Statistics*, **94**, 1143–1156.

Lall, S. (1992), 'Technological capabilities and industrialization,' *World Development*, **20**, 165–186.

Lall, S. (2004), 'The employment impact of globalization in developing countries,' in E. Lee and M. Vivarelli (eds), *Understanding Globalization, Employment and Poverty Reduction*. Palgrave Macmillan: New York, pp. 73–101.

Lazear, E. (2004), 'Balanced skills and entrepreneurship,' *American Economic Review Papers and Proceedings*, **94**, 208–211.

Lazear, E. (2005), 'Entrepreneurship,' *Journal of Labor Economics*, **23**, 649–680.

Lee, D. and E. Tsang (2001), 'The effects of entrepreneurial personality, background and network activity on venture growth,' *Journal of Management Studies*, **38**, 583–602.

Lee, E. and M. Vivarelli (2006), 'The social impact of globalization in developing countries,' *International Labour Review*, **145**, 167–184.

Lee, S.-H., Y. Yamakawa, M. W. Peng and J. B. Barney (2011), 'How do bankruptcy laws affect entrepreneurship development around the world?' *Journal of Business Venturing*, **26**, 505–520.

Lévesque, M. and D. A. Shepherd (2004), 'Entrepreneurs' choice of entry strategy in emerging and developed markets,' *Journal of Business Venturing*, **19**, 29–54.

Lian, Y., M. Sepehri and M. Foley (2011), 'Corporate cash holdings and financial crisis: an empirical study of Chinese companies,' *Eurasian Business Review*, **1**, 112–124.

Ligthelm, A. (2011), 'Survival analysis of small informal businesses in South Africa, 2007–2010,' *Eurasian Business Review*, **1**, 160–179.

Lindh, T. and D. N. Ohlsson (1996), 'Self-employment and windfall gains: evidence from the Swedish lottery,' *Economic Journal*, **106**, 1515–1526.

Lotti, F. and E. Santarelli (2004), 'Industry dynamics and the distribution of firm sizes: a non-parametric approach,' *Southern Economic Journal*, **70**, 443–466.

Lotti, F., E. Santarelli and M. Vivarelli (2003), 'Does Gibrat's law hold among young, small firms?' *Journal of Evolutionary Economics*, **13**, 213–235.

Lotti, F., E. Santarelli and M. Vivarelli (2009), 'Defending Gibrat's law as a long-run regularity,' *Small Business Economics*, **32**, 31–44.

Lucas, R. E.Jr. (1978), 'On the size distribution of business firms,' *Bell Journal of Economics*, **9**, 508–523.

Lucas, R. E.Jr. (1988), 'On the mechanics of economic development,' *Journal of Monetary Economics*, **22**, 3–42.

Malchow-Møller, N., B. Schjerning and A. Sørensen (2011), 'Entrepreneurship, job creation and wage growth,' *Small Business Economics*, **36**, 15–32.

Maloney, W. (2004), 'Informality revisited,' *World Development*, **32**, 1159–1178.

Mansfield, E. (1962), 'Entry, Gibrat's law, innovation and the growth of firms,' *American Economic Review*, **52**, 1023–1051.

Masuda, T. (2006), 'The determinants of latent entrepreneurship in Japan,' *Small Business Economics*, **26**, 227–240.

Mata, J., P. Portugal and P. Guimaraes (1995), 'The survival of new plants: start-up conditions and post-entry evolution,' *International Journal of Industrial Organization*, **13**, 459–482.

McPherson, M. A. (1996), 'Growth of micro and small enterprises in Southern Africa,' *Journal of Development Economics*, **48**, 253–277.

Mead, D. C. and C. Liedholm (1998), 'The dynamics of micro and small enterprises in developing countries,' *World Development*, **26**, 61–74.

Mengistae, T. (2001), 'Indigenous ethnicity and entrepreneurial success in Africa: some evidence from Ethiopia,' *World Bank Policy Research Working Paper 2534*. World Bank: Washington DC.

Michelacci, C. and O. Silva (2007), 'Why so many local entrepreneurs?' *Review of Economics and Statistics*, **89**, 615–633.

Moncada-Paternò-Castello, P., M. Vivarelli and P. Voigt (2011), 'Drivers and impacts in the globalization of corporate R&D: an introduction based on the European experience,' *Industrial and Corporate Change*, **20**, 585–603.

Monsen, E., P. Mahagaonkar and C. Dienes (2012), 'Entrepreneurship in India: the question of occupational transition,' *Small Business Economics*, **39**, 359–382.

Nafziger, E. W. and D. Terrell (1996), 'Entrepreneurial human capital and the long-run survival of firms in India,' *World Development*, **24**, 689–696.

Naudé, W. (2010), 'Entrepreneurship, developing countries, and development economics: new approaches and insights,' *Small Business Economics*, **34**, 1–12.

Naudé, W. A. (2009), 'Out with the sleaze, in with the ease: insufficient for entrepreneurial development?' *UNU-WIDER Research Paper no. 2009/01*. United Nations University: Helsinki, p. , .

Nugent, J. B. and M. K. Nabli (1992), 'Development of financial markets and the size distribution of manufacturing establishments: international comparisons,' *World Development*, **20**, 1489–1499.

Nyström, K. (2008), 'Is entrepreneurship the salvation for enhanced economic growth?' *CESIS Electronic Working Paper Series no. 143*. Royal Institute of Technology: Sweden.

OECD (2003), *The Sources of Economic Growth in OECD Countries*. OECD: Paris.

Orr, D. (1974), 'The determinants of entry: a study of the Canadian manufacturing industries,' *Review of Economics and Statistics*, **56**, 58–66.

Oxenfeldt, A. R. (1943), *New Firms and Free Enterprise: Pre-War and Post-War Aspects*. American Council on Public Affairs: Washington.

Pakes, A. and R. Ericson (1998), 'Empirical implications of alternative models of firm dynamics,' *Journal of Economic Theory*, **79**, 1–45.

Paravisini, D. (2008), 'Local bank financial constraints and firm access to external finance,' *Journal of Finance*, **63**, 2161–2193.

Parker, S. C. (1997), 'The effects of risk on self-employment,' *Small Business Economics*, **9**, 515–522.

Parker, S. C. (2000), 'Saving to overcome borrowing constraints: implications for small business entry and exit,' *Small Business Economics*, **15**, 223–232.

Parker, S. C. (2004), *The Economics of Self-Employment and Entrepreneurship*. Cambridge University Press: Cambridge.

Parker, S. C. (2006), 'New agendas in the economics of entrepreneurship: optimism, education, wealth and entrepreneurship,' paper presented at the 3rd HE.W.P.E.M. (Hellenic Workshop on Efficiency and Productivity Measurement): "*Industry Dynamics, Productivity, Entrepreneurship and Growth*", University of Patras, June 16–18.

Parker, S. C. (2013), 'Do serial entrepreneurs run successively better-performing businesses?' *Journal of Business Venturing*, forthcoming, http://dx.doi.org/10.1016/j.jbusvent.2012.08.001.

Pavitt, K. (1984), 'Sectoral patterns of technical change: towards a taxonomy and a theory,' *Research Policy*, **13**, 343–373.

Pfeiffer, F. and F. Reize (2000), 'Business start-ups by the unemployed—an econometric analysis based on firm data,' *Labour Economics*, **7**, 629–663.

Rajan, R. G. and L. Zingales (1998), 'Financial dependence and growth,' *American Economic Review*, **88**, 559–586.

Ramachandran, V. and M. K. Shah (1999), 'Minority entrepreneurs and firm performance in sub-Saharan Africa,' *Journal of Development Studies*, **36**, 71–87.

Raspe, O. and F. G. Van Oort (2008), 'Firm growth and localized knowledge externalities,' *Journal of Regional Analysis and Policy*, **38**, 100–116.

Reid, G. C. (1991), 'Staying in business,' *International Journal of Industrial Organization*, **9**, 545–556.

Reynolds, P. D. (1997), 'Who Starts New Firms?—Preliminary Explorations of Firms-in-Gestation,' *Small Business Economics*, **9**, 449–462.

Reynolds, P. D., E. Bosma, E. Autio, S. Hunt, N. De Bono, I. Servais, P. Lopez-Garcia and N. Chin (2005), 'Global entrepreneurship monitor: data collecting design and implementation 1998–2003,' *Small Business Economics*, **24**, 205–231.

Reynolds, P. D., M. S. Camp, W. D. Bygrave, E. Autio and M. Hay (2001), *Global Entrepreneurship Monitor. 2001 Summary Report*. London Business School and Babson College: London.

Robbins, D. (2003), 'The impact of trade liberalization upon inequality in developing countries—a review of theory and evidence,' *ILO Working Paper*, n.13, Geneva, International Labour Organization.

Robbins, D. and T. H. Gindling (1999), 'Trade liberalization and the relative wages for more-skilled workers in Costa Rica,' *Review of Development Economics*, **3**, 140–154.

Roberts, P. W., S. Klepper and S. Hayward (2011), 'Founder backgrounds and the evolution of firm size,' *Industrial and Corporate Change*, **20**, 1515–1538.

Romer, P. M. (1986), 'Increasing returns and long-run growth,' *Journal of Political Economy*, **98**, S71–S102.

Romer, P. M. (1990), 'Endogenous technical change,' *Journal of Political Economy*, **94**, 1002–1037.

Santarelli, E. (2006), 'Introduction,' in E. Santarelli (ed.), *Entrepreneurship, Growth, and Innovation: The Dynamics of Firms and Industries*. Springer: New York, pp. xiii–xx.

Santarelli, E., M. Carree and I. Verheul (2009), 'Unemployment and firm entry and exit: an update on a controversial relationship,' *Regional Studies*, **43**, 1061–1073.

Santarelli, E. and H. T. Tran (2011), 'Growth of incumbent firms and entrepreneurship in Vietnam,' *Working Papers DSE n. 785*. Dipartimento Scienze Economiche—Universita' di Bologna: Bologna.

Santarelli, E. and M. Vivarelli (2002), 'Is subsidizing entry an optimal policy?' *Industrial and Corporate Change*, **11**, 39–52.

Santarelli, E. and M. Vivarelli (2007), 'Entrepreneurship and the process of firms' entry, survival and growth,' *Industrial and Corporate Change*, **16**, 455–488.

Schumpeter, J. A. (1934), *The Theory of Economic Development*. Harvard University Press: Cambridge, MA.

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

Schumpeter, J. A. (1943), *Capitalism, Socialism and Democracy*. Harper: New York.

Shane, S. (1997), 'Who is publishing the entrepreneurship research?' *Journal of Management*, **23**, 83–95.

Shane, S. (2000), 'Prior knowledge and the discovery of entrepreneurial opportunities,' *Organization Science*, **11**, 448–469.

Shane, S. (2001), 'Technological opportunities and new firm creation,' *Management Science*, **47**, 205–220.

Shane, S. (2009), 'Why encouraging more people to become entrepreneurs is bad public policy,' *Small Business Economics*, **33**, 141–149.

Silva, O. (2007), 'The Jack-of-all-trades entrepreneur: innate talent or acquired skill?' *Economics Letters*, **97**, 118–123.

Sleuwaegen, L. and M. Goedhuys (2002), 'Growth of firms in developing countries, evidence from Côte d'Ivoire,' *Journal of Development Economics*, **68**, 117–135.

Small Business Service (2001), *Global Entrepreneurship Monitor. 2001 UK Executive Report*. London Business School: London.

Sonobe, T., J. E. Akoten and K. Otsuka (2011), 'The growth process of informal enterprises in sub-Saharan Africa: a case study of a metalworking cluster in Nairobi,' *Small Business Economics*, **36**, 323–335.

Sørensen, J. B. and D. J. Phillips (2011), 'Competence and commitment: employer size and entrepreneurial endurance,' *Industrial and Corporate Change*, **20**, 1277–1304.

Srholec, M. (2011), 'A multilevel analysis of innovation in developing countries,' *Industrial and Corporate Change*, **20**, 1539–1569.

Stam, E. (2007), 'Why butterflies don't leave. Locational behavior of entrepreneurial firms,' *Economic Geography*, **83**, 27–50.

Stam, E., N. Bosma, A. Van Witteloostuijn, J. De Jong, S. Bogaert, N. Edwards and F. Jaspers (2012), *Ambitious Entrepreneurship. A Review of the Academic Literature and New Directions for Public Policy*, Report for the Advisory Council for Science and Technology Policy (AWT) and the Flemish Council for Science and Innovation (VRWI), January 2012, The Hague, Advisory Council for Science and Technology Policy (AWT).

Stam, E. and K. Wennberg (2009), 'The roles of R&D in new firm growth,' *Small Business Economics*, **33**, 77–89.

Storey, D. J. (1982), *Entrepreneurship and the New Firm*. Croom Helm: London.

Storey, D. J. (1991), 'The birth of new firms—does unemployment matter? A review of the evidence,' *Small Business Economics*, **3**, 167–178.

Storey, D. J. (1994), *Understanding the Small Business Sector*. Routledge: London.

Storey, D. J. and A. M. Jones (1987), 'New firm formation—a labor market approach to industrial entry,' *Scottish Journal of Political Economy*, **34**, 37–51.

Sutton, J. (1991), *Sunk Costs and Market Structure*. MIT Press: Cambridge, MA.

Sutton, J. (1997), 'Gibrat's legacy,' *Journal of Economic Literature*, **35**, 40–59.

Teixeira, A. (2011), 'Mapping the (in)visible college(s) in the field of entrepreneurship,' *Scientometrics*, **89**, 1–36.

Thurik, A. R. (2003), 'Entrepreneurship and unemployment in the UK,' *Scottish Journal of Political Economy*, **50**, 264–290.

Thurik, A. R., M. Carre, A. Van Stel and D. B. Audretsch (2008), 'Does self-employment reduce unemployment?' *Journal of Business Venturing*, **23**, 673–686.

Tybout, J. R. (2000), 'Manufacturing firms in developing countries: how well do they do and why?' *Journal of Economic Literature*, **38**, 11–44.

Van der Boor, P., F. M. Veloso and P. Oliveira (2012), 'Innovation by users in emerging economies: evidence from mobile banking services,' *mimeo*, SSRN: http://ssrn.com/abstract=2009926 or http://dx.doi.org/10.2139/ssrn.2009926.

Van der Sluis, J., M. Van Praag and W. Vijverberg (2005), 'Entrepreneurship selection and performance: a meta-analysis of the impact of education in developing economies,' *World Bank Economic Review*, **19**, 225–261.

Van Praag, M. C. and P. H. Versloot (2007), 'what is the value of entrepreneurship? A review of recent research,' *Small Business Economics*, **29**, 351–382.

Van Stel, A. J., M. Carree and A. R. Thurik (2005), 'The effect of entrepreneurial activity on national economic growth,' *Small Business Economics*, **24**, 311–321.

Vijverberg, W. (1991), 'Profits from self-employment: the case of Côte d'Ivoire,' *World Development*, **19**, 683–696.

Vivarelli, M. (1991), 'The birth of new enterprises,' *Small Business Economics*, **3**, 215–223.

Vivarelli, M. (2004), 'Are all the potential entrepreneurs so good?' *Small Business Economics*, **23**, 41–49.

Vivarelli, M. (2007), *Entry and Post-Entry Performance of Newborn Firms*. Routledge: London.

Vivarelli, M. and D. B. Audretsch (1998), 'The link between the entry decision and post-entry performance: evidence from Italy,' *Industrial and Corporate Change*, **7**, 485–500.

Wagner, J. (2003), 'Testing Lazear's Jack-of-all-trades view of entrepreneurship with German microdata,' *Applied Economics Letters*, **10**, 687–689.

Wang, S. (2006), 'Determinants of new firm formation in Taiwan,' *Small Business Economics*, **27**, 313–323.

Wennekers, S. and A. R. Thurik (1999), 'Linking entrepreneurship and economic growth,' *Small Business Economics*, **13**, 27–55.

Wennekers, S., A. J. van Stel, A. R. Thurik and P. D. Reynolds (2005), 'Nascent entrepreneurship and the level of economic development,' *Small Business Economics*, **24**, 293–309.

Winter, S. G. (1991), 'On coase, competence, and the corporation,' in O. E. Williamson and S. G. Winter (eds), *The Nature of the Firm: Origins, Evolution and Development*. Oxford University Press: Oxford, pp. 179–195.

Xu, B. (1998), 'A reestimation of the Evans-Jovanovic entrepreneurial choice model,' *Economics Letters*, **58**, 91–95.

Yasuda, T. (2005), 'Firm growth, size, age, and behavior in Japanese manufacturing,' *Small Business Economics*, **24**, 1–15.

Yunus, M. (1999), *Banker to the Poor*. Aurum Press: London.

Yunus, M. (2002), 'Toward eliminating poverty from the world: Grameen Bank experience,' in L. C. Anderson and J. W. Looney (eds), *Making Progress Essays in Progress and Public Policy*. Lexington Books: Lanham, Oxford, pp. 371–378.

Zacharakis, A. L., W. D. Bygrave and D. A. Shepherd (2000), *Global Entrepreneurship Monitor. National Entrepreneurship Assessment: United States of America, 2000 Executive Report*. Babson College: Babson Park, MA.