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ENTREPRENEURSHIP AND POST-ENTRY PERFORMANCE: THE MICROECONOMIC EVIDENCE

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ENTREPRENEURSHIP AND POST-ENTRY PERFORMANCE:

THE MICROECONOMIC EVIDENCE

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ABSTRACT

The aim of this chapter is to provide a microeconomic investigation of the concept of entrepreneurship; in particular, the following issues will be discussed: 1) the alternative ways of looking at entrepreneurship, distinguishing 'creative destruction' from simple 'turbulence'; 2) the different microeconomic determinants of new firm formation, distinguishing 'progressive' from 'regressive' drivers; 3) the relationship between ex-ante characteristics (of the founder) and post-entry performance (of the new firm); and 4) the possible scope for an economic policy aimed at maximizing the impact of entrepreneurship on economic growth.

Keywords: Entrepreneurship; new firm; innovation.

JEL Classification: L26

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1. Introduction

In recent years a strong belief that 'entrepreneurship' is a crucial driver of economic growth has emerged among both scholars and policy makers (see, for instance, Audretsch, Keilbach and Lehmann, 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 'Shumpeterian 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.

Empirically a world-wide 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 (see Zacharakis, Bygrave and Shepherd, 2000; Reynolds *et al.*, 2005; Acs, Desai and Klapper, 2008). This project reports the rates of business start-up and of 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, p.217).

Within this context, the purpose of this chapter is to provide a contribution to the identification of the role of entrepreneurship in economic growth by mapping out: 1) the different microeconomic determinants of new firm formation; 2) the relationship

between ex-ante characteristics (of the founder) and post-entry performance (of the new firm); and 3) 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 are discussed in Section 2, where we attempt to throw some light on the concept of entrepreneurship, extending what has already been mentioned in this Introduction. 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.

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 (see Malchow-Møller, Schjerning and Sørensen, 2011)[i].

Indeed, while endogenous growth theorists (see Lucas, 1988; Romer, 1986 and 1990; 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 (see Acs *et al*., 2005; Carree and Thurik, 2006; Audretsch, Keilbach and Lehmann, 2006; Braunerhjelm *et al.* 2010; Acs *et al*., 2012). 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, pp. 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 towards the incumbents which have to cope with the tougher competition through innovation and increasing productivity (see also Baptista, Escária and Madruga, 2008; Baldwin and Gu, 2011*;* and, for a focus on services, Bosma, Stam and Schutjens, 2011).

However, before continuing, the question of what is intended by entrepreneurship and how it can be measured needs to be addressed. In the industrial organization 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 (see Audretsch and Keilbach, 2004; Foster, Haltiwanger and Syverson, 2008; Fritsch, 2011). The reasoning is that new entrants can displace obsolescent firms in a process of 'creative destruction' (see Schumpeter, 1939 and 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 (see Santarelli, 2006, p. xii).

In more general terms, it has been argued that new firm formation can be beneficial for economic growth (see Van Stel, Carree and Thurik, 2005), employment generation and unemployment reduction (see Hart and Oulton, 2001; Thurik, 2003). However, recent studies based on GEM evidence have identified a U-shaped relationship between a country's rate of entrepreneurial activity and its level of economic development (see Reynolds *et al*., 2001; Wennekers *et al*., 2005). Indeed, this evidence that new firm formation is very high in both highly developed and extremely poor countries (where most of the so-called entrepreneurs are street vendors and people self-employed in traditional personal services) opens the way to considering entrepreneurship as a multi-faceted concept, not necessarily associated with innovation, productivity growth and

economic development. Indeed, only when 'opportunity entrepreneurs' (those motivated by innovative and 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 (see Carree *et al*., 2007; Acs, Desai and Hessels, 2008; Acs, 2008)[ii].

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. Firstly, survival rates for new firms are strikingly low: according to Bartelsman, Scarpetta and Schivardi (2005), who worked on data for ten OECD countries, about 20-40% of entering firms fail within the first two years of life, while only 40 to 50% survive beyond the seventh year (see also OECD, 2003, p. 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 more than 50% of new firms exit the market within the first five years of activity (see Dunne, Roberts and Samuelson, 1988 and 1989; Reid 1991; Geroski, 1995; Mata, Portugal and Guimaraes, 1995; Audretsch and Mahmood, 1995; Audretsch, Santarelli and Vivarelli, 1999a; Johnson, 2005)[iii].

Secondly, entry and exit rates are significantly correlated; this is one of the uncontroversial 'stylized facts' of the entry process according to Geroski (1995, p. 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" (see also Baldwin and Gorecki, 1987 and 1991). Indeed, entry and exit rates have been found to be positively correlated across industries in both OECD countries (see Bartelsman,

Scarpetta and Schivardi, 2005) and in DCs (see Bartelsman, Haltinwanger and Scarpetta, 2004[iv]).

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. If entry were indeed driven mainly by technological opportunities, growing sales and profit expectations, one would observe a negative cross-sectional correlation between 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 (see Audretsch, 1991, and 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 (see 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 following Section 4.2.1).

Consistently, 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, Delmastro and Grilli, 2004*)* in advanced manufacturing and ICT services certainly play a different role compared with small-sized start-ups in traditional sectors[v]. 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.

Indeed, Schumpeter himself (1934 and 1939) makes it clear that the entry of new firms is due to a vast 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" (ibidem, p.18). Moreover, 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'" (ibidem, p. 50). In contrast with the 'apologia' which tends to identify entrepreneurship with innovation, Baumol correctly points out that innovative entrepreneurs are the exceptions (the so-called 'superstars', see Baumol, Schilling and Wolff, 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[vi]. In fact, as in many other fields of economics, 'heterogeneity' (see 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 *vs* 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 (see 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 (see see Acs and Audretsch, 1989a and 1989b; Geroski, 1995).

Moreover, again according to a conventional industrial organization (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 (see Geroski and Schwalbach, 1991) or the presence of bureaucratic entry regulations (see Djankov *et al*., 2002; Klapper, Laeven and Rajan, 2006), and on the other hand by endogenous entry barriers such as R&D and advertising expenditures (see Sutton, 1991; Arauzo-Carod and Segarra-Blasco, 2005).

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[vii] (see 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 and 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 to the potential founder's personal characteristics.

For instance, the specific local/sectoral labor market plays an important role given that the vast majority of new founders, approx. 2/3 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 (see 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)[viii]. Therefore, entrepreneurship is strongly characterized by sectoral and locational inertia, thus turning out as a phenomenon affected by a significant persistence (see Fritsch and Mueller, 2007)[ix].

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 (see Creedy and Johnson, 1983; Vivarelli, 1991; Foti and Vivarelli, 1994; Audretsch, 1995; Geroski, 1995; Reynolds, 1997; Vivarelli, 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 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 (see Highfield and Smiley, 1987; Hamilton, 1989)[x].

Pushing this argument further, founding a new firm may be an alternative to uncertain future career prospects, or even represents an 'escape from unemployment' (see Oxenfeldt, 1943; Evans and Leighton, 1990; Storey, 1991 and 1994). The empirical evidence suggesting the important role of job losses in fostering entry is indeed quite robust (see Storey and Jones, 1987; Santarelli, Carree and Verheul, 2009). Using a panel

of Italian data, Audretsch and Vivarelli (1995 and 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 '90s, in the UK the incidence of people starting a firm not because of a market opportunity but just because they had no better choice was about 22% (see Small Business Service, 2001, p.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 '90s (see Masuda, 2006)[xi].

Thus entry may be determined by a set of different environmental factors including some 'progressive' determinants such as profitability and promising technological opportunities, but 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, personal motivation. To start with, 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 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' (see 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 which explain new firm formation as an act of self-employment (see 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 paper Burke, FitzRoy and Nolan (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.

Another important stream of literature has investigated the impact of financial constraints on business start-ups, mostly following on from the work by Fazzari, Hubbard and Petersen (1988). For instance, Evans and Jovanovic (1989) found that the initial level of assets strongly influences the probability of self-employment (see also 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 (see Holtz-Eakin, Joulfaian and Rosen, 1994; Lindh and Ohlsson, 1996). The fact that wealth, inheritance and windfall gains spur entrepreneurship suggests that business start-ups are often underfinanced (see 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.

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 labour 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, a desire to be socially useful and to acquire improved social status (see Creedy and Johnson, 1983; Evans and Leighton, 1990; Blanchflower and Meyer, 1994; Blanchflower and Oswald, 1998; Vivarelli 1991 and 2004; Zacharakis, Bygrave and Shepherd, 2000)[xii].

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' (see 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[xiii], 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 entrepreneurs to be especially prone to unrealistic over-optimism, and previous empirical evidence

showing that optimism is significantly and positively associated with the propensity to be an entrepreneur (see De Meza, 2002; Åstebro, 2003; Coelho, de Meza and Reyniers, 2004). Conversely, Caliendo, Fossen and Kritikos (2010) shows that a lower risk aversion is not connected at all with entrepreneurial survival.

If one takes into account the (often dominant) psychological attitudes discussed above (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 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.

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. 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.

4.1 Firm's size and age

Many studies have discovered a positive relationship between start-up size and survival (see Audretsch and Mahmood, 1995; Mata, Portugal and Guimaraes, 1995; Agarval and Audretsch, 2001; for more controversial results, see Audretsch, Santarelli and Vivarelli, 1999a and 1999b). Since entry implies sunk costs (see 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.

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 (see Gibrat, 1931; Hall, 1987; Hart and Oulton, 1996; Sutton, 1997; Goddard, Wilson and Blandon, 2002; Bottazzi and Secchi, 2006; Lotti, Santarelli and Vivarelli, 2003 and 2009). This evidence means that smaller entrants with a sub-optimal

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[xiv].

Consistently, a firm's age turns out to be positively correlated with survival and negatively with growth (see Evans, 1987; Dunne and Hughes, 1994; Yasuda, 2005; Calvo 2006). This is not surprising: 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.

4.2 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 (see Xu, 1998; Carpenter and Petersen, 2002; Becchetti and Trovato, 2002; Aghion, Fally and Scarpetta, 2007). However, some recent studies have shown that the role of credit rationing has been somewhat over-emphasized and that entrepreneurial saving plans may be able to overcome borrowing constraints (Cressy, 1996 and 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.

4.3 Education

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

However, Lazear (2004 and 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 above)[xv].

4.4 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, Klepper and Hayward, 2011**)**.

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 average better exploit the economic and financial opportunities available in the region where they were born. By the same token, Dahl and Sorenson (2011) 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[xvi]) and 'serial entrepreneurs' (founders who have previously run other businesses) may have an advantage compared with "*de novo*" entrepreneurs. For example, Hirakawa, Muendler and Rauch (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 or serial entrepreneurs who failed in their prior business (see Gompers *et al*., 2006).

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, Gimeno-Gascon and Woo, 1994; Cressy, 1996; Arrighetti and Vivarelli, 1999; Lee and Tsang, 2001; Shane, 2001; Vivarelli, 2004).

4.5 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 and Coad and Rao, 2008; Altindag, Zehir and Acar, 2011; Corsino and Gabriele, 2011) and specifically as a positive predictor of survival and an above-the-average post-entry performance of newborn firms (see Esteve-Pèrez, Sanchis

and Sanchis, 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[xvii] 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 (see also Vivarelli and Audretsch, 1998).

Consistently with the discussion above, Cefis and Marsili (2006) found convincing evidence of an 'innovation premium' in survival time: using Pavitt's (1984) taxonomy, they showed that young firms (less than four 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.

4.6 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: 1) 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); 2) new founders who were formerly unemployed have on average lower economic outcomes and a lower propensity to contribute positively to job creation. For instance, in the previously-cited paper 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, p. 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 to 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.

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 aggregate where real and innovative entrepreneurs are to be found together with passive followers, over-optimistic 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.

Firstly, 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.

Secondly, 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. Policy makers should discourage this type of venture.

Thirdly, 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, a fear of unemployment.

Fourthly, *ex-ante* ‘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 this context, the widespread diffusion of general, ‘erga-omnes’ entry subsidies as policy instruments in both the developed and

the developing countries is unfortunate[xviii]. More 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 newborn 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, cancelling 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 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).

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[i] 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 (see Fritsch and Mueller, 2004; Acs and Mueller, 2008).

[ii] 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 and 2012) have put forward a composite "Global 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.

[iii] For instance, Audretsch, Santarelli and Vivarelli (1999a) studied 1,570 new Italian manufacturing firms with at least one employee and tracked their post-entry evolution for six years. They found that hazard rates increased markedly during the first two years and then tended to decrease, with a final survival rate after 6 years of activity equal to 59.1%.

[iv] The authors used a sample of 22 countries (14 European, 6 Latin American, the US and Canada) and found that the correlation between entry and exit rates across industries in 1990 was positive and significant in the vast majority of cases (Bartelsman, Haltinwanger and Scarpetta, 2004, p.21, Table 6).

[v] 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 (see Audretsch and Thurik, 2000).

[vi] See also Santarelli and Vivarelli (2002 and 2007); Vivarelli (2007), Chap. 1.

[vii] 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 (see Acs, 2006). In contrast, if the individual 'push factors' are taken into account fully, new firms have to be related to the labour force (for further discussion, see Santarelli, Carree and Verheul, 2009; Vivarelli, 2007).

[viii] 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).

[ix] 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 and Fritsch and Schroeter, 2011; for the analysis of the spatial distribution of entrepreneurship see Glaeser and Kerr 2009, Glaeser, Kerr, and Ponzetto, 2010; for a recent and detailed survey on these subjects, see Frenken, Cefis and Stam, 2011).

[x] 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.

[xi] 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 about 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).

[xii] Questionnaire analyses conducted by the author (Vivarelli and Audretsch, 1998, p. 492; Arrighetti and Vivarelli, 1999, p. 933; Vivarelli, 2004, p.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 motivations. Interestingly enough, innovation always lags behind, with a minority of firms (about 15-20%) indicating the desire to introduce product and/or process innovation as a fundamental reason for starting a new independent economic activity.

[xiii] 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 below). On the contrary, entry mistakes are not easily conceivable within the 'Austrian' approach (see Kirzner, 1973 and 1997) where

profit opportunities are not likely to be recognized by all the potential entrepreneurs, but only by the 'alerted' ones which are able to recognise latent, overlooked opportunities.

[xiv] 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 (see Bonaccorsi and Giannangeli, 2010; Stam *et. al.*, 2012, pp. 98-99).

[xv] 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 (see Åstebro, 2005; Silva 2007; Åstebro and Thompson, 2011).

[xvi] 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 (see Ferriani, Garnsey and Lorenzoni, 2012).

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

[xviii] As correctly pointed out by Shane (2009, p. 41): "Policy makers believe a dangerous myth. They think that start-up companies are a magic bullet that will transform depressed economic regions, generate innovation, create jobs.This belief is flawed because the typical start-up is not innovative, creates few jobs, and generates little wealth".