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▶ To cite this version:

Francesco Quatraro, Marco Vivarelli. Drivers of entrepreneurship and post-entry performance of newborn firms in developing countries. World Bank Research Observer, Oxford University Press (OUP), 2015, 30 (2), pp.277-305. <10.1093/wbro/lku012>. <hal-01071511>

HAL Id: hal-01071511
https://hal.archives-ouvertes.fr/hal-01071511

Submitted on 17 Nov 2014

DRIVERS OF ENTREPRENEURSHIP AND POST-ENTRY PERFORMANCE OF NEWBORN FIRMS IN DEVELOPING COUNTRIES

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ABSTRACT

The aim of this paper is to provide an updated survey of the "state of the art" in entrepreneurial studies, with a particular focus on developing countries (DCs). In particular, the same concept of "entrepreneurship" will be critically discussed, then moving to the institutional, macroeconomic and microeconomic conditions affecting the entry of new firms and the post-entry performance of newborn firms.

Keywords: Entrepreneurship; new firm; innovation, development.
JEL Classification:L26, O12.

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1 Introduction

According to Schumpeter (1934), entrepreneurship is a driving force of innovation, and more generally an engine for economic development (see Audretsch, Keilbach and Lehmann, 2006; Koellinger and Thurik, 2012; and, for a comprehensive survey, Van Praag and Versloot, 2007).

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. 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).

The relationship between the rate of new firm creation and economic development is however heterogeneous across countries. The distinction between advanced and developing countries (DCs) is especially important in this respect. Wennekers *et al.* (2005) indeed showed that the link between entrepreneurial dynamics and economic performances is not monotonic. On the contrary, they found evidence of a U-shaped relationship between the level of development and the rate of entrepreneurship (see also Ligthelm, 2011, p.163). This suggests that entrepreneurship does not yield the same effects no matter where it takes place. Based on this contribution, Amoròs and Cristi (2008) analyzed the Latin America evidence by adopting an interpretative framework based on the Porter's (1990) scheme of country economic development, which identifies three stages: factor-driven, efficiency-driven and innovative-driven. They provided further support to the U-shaped hypothesis, and in particular they show that Latin America's countries are clustered in the downward part of the curve.

Such heterogeneous evidence at the aggregate level can be better understood when shifting the focus 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[1]. For obvious reasons, this kind of 'survival-driven' self-employment is particularly diffused in DCs (Naudé, 2009 and 2010; Desai, 2009), 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, Akoten and Otsuka, 2011). The prevalence of 'survival driven' entrepreneurs in DCs is often associated to the choice to stay small and informal, rather than participating to the formal sector of the economy (see Section 3; Klapper, Amit and Guillén, 2010; Desai, 2009). This is one of the reasons why the effects of entrepreneurship on economic performances of DCs appear to be problematic. However, Amoròs and Cristi (2011) study the relationship between entrepreneurship and human development indicators and provide empirical evidence to the hypothesis that, while this kind of entrepreneurship is hardly able to trigger the economic performance of DCs, it contributes nonetheless to the reduction of inequalities by affecting the wealth distribution in the society. On similar grounds, Naudè, Amoros and Cristi (2011) posit that the effects of entrepreneurship in DCs should be analyzed by looking at broader and more non-material and subjective measures of human well-being. Their findings suggest that entrepreneurship in DCs may matter for individual and societal development, beyond the mere increase of GDP.

The emphasis on the development stage of countries calls for a special attention also to the evolution of their industrial structure. Since the seminal contributions by Marshall (1919) and Kuznets (1930), and we have known indeed that a country's economic performance is much related to the main sectors in which it shows a comparative advantage. The fortunes of countries as well as the dynamics of entry, exit and growth are therefore closely related to the relative stage of the lifecycle of their industries (Klepper, 1997).

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[1] The identification of necessity entrepreneurs is a non-trivial task. In the recent literature the distinction between necessity and opportunity driven entrepreneurs is grasped by using the Global Entrepreneurship Monitor (GEM) data. The GEM measures 'necessity-driven' entrepreneurship by including the question 'Are you involved in this start-up [this firm] to take advantage of a business opportunity or because you have no better choices of work?' (Naudé, Amoros and Cristi, 2011). In more general terms, empirical studies single out "necessity entrepreneurs" either as those who come from an unemployment status or as those answering to ad-hoc questionnaires, revealing to be pushed into "entrepreneurship" by a concern about future career developments or by the fear of becoming unemployed (see also Section 4.6).

In this respect, 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: the available econometric evidence shows that more than 50% of new firms exit the market within the first five years of activity (see Dunne, Roberts and Samuelson, 1989; Reid 1991; Geroski, 1995; Mata, Portugal and Guimaraes, 1995; Audretsch and Mahmood, 1995; Audretsch, Santarelli and Vivarelli, 1999a; Johnson, 2005).

Secondly, entry and exit rates are significantly correlated (what is called "turbulence", see Beesley and Hamilton, 1984); 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[2]).

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 entry and exit rates, in particular over short time intervals.

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, Delmastro and Grilli, 2004) in advanced manufacturing and ICT services certainly play a different role compared with small-sized start-ups in traditional 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

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[2]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).

turbulence more likely and the presence of progressive/innovative entrepreneurs an exception.

Within this context, the rest of the paper is organized as follows: Section 2 is devoted to the institutional context (which is often the main deterrent to entrepreneurship in the DCs); Section 3 moves to the microeconomic and personal drivers of entrepreneurship; Section 4 discusses the link between *ex-ante* characteristics and post-entry performance of newborn firms, while Section 5 briefly concludes.

2. Contextual factors and institutional constraints

Together with industrial characteristics (see Section 1), the growth of a newborn firm is affected by a larger set of variables which have to do with the general macroeconomic business climate and with a wide range of institutional factors (see Acs and Audretsch, 1990; Geroski and Schwalbach J., 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 developing countries , with a larger impact moving down from the middle-income to the low-income DCs.

At a general level, the growth of small entrepreneurial firms is obviously constrained by the overall state of the economy and the economic cycle is indeed much important for what concerns the availability of exploitable business opportunities (see Nichter and Goldmark, 2009). However, the different entrepreneurial dynamics introduced in the previous section engender a composite response to business cycles. Indeed, in recession phases the reduction of opportunity-driven Schumpeterian entrepreneurs may well be accompanied by the expansion of the necessity-driven ones (Pisani and Pagan, 2004).

DCs are also characterized by several market failures which severely hamper the post-entry growth potentialities of entrepreneurial activities. As extensively discussed in Tybout (2000), Aterido, Hallward-Driemeier and Pagés, (2009) and Vivarelli (2012)

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.

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 vast majority of cases because their financial markets are underdeveloped (see Ayyagari, Demirgüç-Kunt, and Maksimovic, 2008; Lian, Sepehri and Foley, 2011 and Section 4.2.2 below). In fact, capital markets in DCs are characterized by: 1) 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); 2) by a lower level of competition between financial intermediaries generating misallocation of funds (see Banerjee, Duflo and Munshi, 2003, studying misallocation of capital in India; Cole, 2009, discussing agricultural credit in India); 3) 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).

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 (see Goedhuys and Sleuwaegen 1999; Sleuwaegen and Goedhuys, 2002; Beck, Demirgüç-Kunt and Maksimovic, 2005; Lee *et al.*, 2011). For instance, in a recent study, Ardagna and Lusardi (2010), dealing with GEM microdata from 37 countries including 8 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, inefficient regulation may hinder the growth of small firms in DCs as they may fear the effects of red tape and higher taxes (De Soto, 1989). By the same token, the regulatory framework often involves counterproductive policy measures originally thought for supporting small firms, but actually prevent firm's growth. Indeed, the presence of subsidies addressed to SMEs may push entrepreneurs to keep the size of the firm unchanged - or at least below a given

threshold - in order to keep being eligible for government funding (Little, Mazumdar and Page, 1987; Mitra and Pingali, 1999).

Moreover, in a developing country context, a prominent role is played by the wide diffusion of bribing, which may abort any chance of growth of a fragile new entrepreneurial activity[3]. For 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 (see Beck, Demirgüç-Kunt and Maksimovic, 2005)[4].

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 (see Aterido, Hallward-Driemeier and Pagés, 2009; Goedhuys and Sleuwaegen, 2010[5]; Ghani, Kerr, and O'Connell, 2011).

Having discussed the role of the macroeconomic and institutional conditions, we now move the focus of this study on the microeconomic and personal characteristics that may play a role in determining the entry and post-entry performance of new firms in the DCs.

3. The microeconomic determinants of entry

In the traditional microeconomic textbook narrative, the creation of new firm is driven by profit expectations, economic growth and technological opportunities

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[3] Aterido, Hallward-Driemeier and Pagés (2009, p.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.

[4] Aterido, Hallward-Driemeier and Pagés (2009) provides a slightly different picture, showing that the effect of corruption on growth is different across different size classes. In particular, corruption seems to have no effect on medium-sized firms and some negative effects on small firms, while it would help micro firms to grow. This can be explained by the fact that often very small firms in DCs do not comply with all the prescriptions of business regulation, and moreover they also stay persistently in the informal sector. Paying bribes may therefore turn out to be less costly than compliance (see also Vial and Hanoteau, 2010).

[5] 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.

(Mansfield, 1962; Acs and Audretsch, 1989a and 1989b; Geroski, 1995), while deterred by both exogenous and endogenous entry barriers (Geroski and Schwalbach, 1991; Sutton, 1991; Arauzo-Carod and Segarra-Blasco, 2005).

However, the main limitation of the textbook approach is that it focuses on market mechanisms ("*pull factors*")and may obscure the decision-making process at the level of the individual[6] (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 starting their first job experience, or ex-entrepreneurs, or founders moving in from an outside region (see Vivarelli, 1991; Storey, 1994; Cressy, 1996; Arrighetti and Vivarelli, 1999; Shane, 2000; Stam, 2007). 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).

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; Vivarelli, 2004; for the DCs, see Lévesque and Shepherd, 2004). 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).

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[6] 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. 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).

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; Premand *et al.*, 2012).

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 (the latter conditions being particularly likely in a DC context).

Moreover, in determining new firm formation, these environmental drivers interact with the potential entrepreneur's personal traits.

Indeed, 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 (see Evans and Leighton, 1989; Reynolds *et al.*, 2001; Chlosta *et al.*, 2012). The role of the family background in fostering entrepreneurship has been proved in the DCs, as well; for instance, Djankov *et al.* (2006a, 2006b and 2007) have shown that entrepreneurs in both 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, Hubbard and Petersen (1988). 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, with DCs obviously suffering a disadvantage in this respect (Kerr and Nanda, 2011; Klapper, Amit and Guillén, 2010; see Section 2).

Other studies show that non-economic personal factors may turn out to be even more important than environmental variables. 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; Vivarelli 1991 and 2004; Zacharakis, Bygrave and Shepherd, 2000).

If one takes into account the (often dominant) psychological attitudes discussed above, 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. Accordingly, market churning, turbulence and early failure, observed at a more aggregate level of analysis (see Section 1) 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 (see Baumol 1990 and 2010).

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'.

4. Drivers of the post-entry performance of newborn firms

Since entrepreneurs are embedded in different institutional contexts (see Sections 1 and 2) and are driven by both progressive and regressive determinants (see Section 3), the post-entry performance of newborn firms and their eventual contribution to economic development may be very diverse as well.

Indeed, from an empirical perspective, a relatively recent stream of literature has focused on the drivers of survival (or early exit) and growth 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 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[7]). Since entry implies sunk costs (see Sutton, 1991) and generally occurs at a scale that is lower than the minimum efficient scale (MES), a larger entry size is a signal of commitment and self-confidence and makes both the occurrence of an entry mistake (see Section 4.2) and the risk of a failure due to diseconomies of scale less likely.

Moreover, a larger start-up size is positively correlated with other factors – such as lower credit constraints and a higher technological capability – which are predictors of a higher likelihood of survival and better post-entry performance (see Sections 4.3 and 4.5 below). Therefore, a larger start-up size can be definitely considered a reliable indicator of better chances of survival of the newborn firm.

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; 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. However, it is worth emphasizing that the (negative) relationship between size and growth has been found to be significant *within* the sub-sample of new entrants that struggle to survive (see Lotti, Santarelli, Vivarelli, 2003).

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[7] However, as clarified by the authors, these results - in contrast with previous studies - may be due to the peculiarities of the Italian manufacturing sample used, dominated by micro-firms well below the minimum efficient scale. In this context characterized by a limited size variability, the positive impact of a larger scale might have been underestimated.

Once market selection is accounted for, long run analyses have instead shown that a convergence towards Gibrat-like behavior can be detected among the survived most efficient firms (see Lotti, Santarelli and Vivarelli, 2006 and 2009; Daunfeldt and Elert, 2013). In other words, once small entrants have succeeded in approaching an efficient scale of production, their growth dynamics resembles more and more a stochastic process in which size and growth are independent.

Consistently, a firm's age turns out to be positively correlated with survival (that is the hazard rate is decreasing with age; see Fackler, Schnabel and Wagner, 2013) and negatively with growth (see Evans, 1987; Dunne and Hughes, 1994; Calvo 2006; Coad, Segarra and Teurel, 2013): experienced, mature firms are more able to deal with market dynamics and so more likely to stay in the market ; however, once they have reached (or being very close to) the MES, they do not need to grow very fast[8].

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, L. and Goedhuys, M. (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[9].

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[8] Moreover, recent literature has shown that firms' age may play a crucial role in shaping the relationship between size and firms' growth. In particular, Haltiwanger, Jarmin and Miranda (2013) - using data from the Census Bureau's Business Dynamics Statistics and Longitudinal Business Database - show that, once one controls for firm age, the negative relationship between size and growth either disappears or reverses the sign, due to the large share of exit among the smallest firms. As far as age is concerned, young firms are found to grow more rapidly than the mature ones; in this perspective start-ups are likely to play a key role in the job creation process. However, Haltiwanger, Jarmin and Miranda (2013) do not focus on start-ups, being most of their firms established incumbents; (for an analysis of the link between age and firm's performance, see also Coad, Segarra and Teruel, 2013).

[9] Consistent econometric outcomes in studies devoted to the DCs can also be found in Mead and Liedholm (1998); Gunning and Mengistae (2001); Bigsten and Söderbom (2006); Coad and Tamvada (2012).

To sum-up, a larger start-up size is reassuring in terms of likelihood of survival and in making the job creation linked to the newborn firm not transitory; on the other hand, smaller new entrants - in order to survive - must grow rapidly and so they may also contribute to employment growth. However, in the latter case, the job creation effect involved by the surviving and fast-growing small entrants has to be compared with the massive job losses due to the early failure of most of the small newborn firms.

4.2 Entrepreneurial learning

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. However, the first author to represent the post-entry evolution of newborn firms formally was Boyan Jovanovic (1982) who proposed a Bayesian model of noisy selection, according to which efficient firms grow and survive, whereas inefficient ones decline and fail. The Jovanovic's model of entrepreneurial learning 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 sections; see also Hopenhayn, 1992; Ericson and Pakes, 1995).

If entrepreneurial learning is crucial and entry is often tentative, both spinoffs (entrepreneurs leaving a mother firm to found a new business) and 'serial entrepreneurs' (founders who have previously run other businesses) may have an advantage compared with "*de novo*" entrepreneurs[10]. 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 4.1) 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

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[10] 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).

their past companies than single venture entrepreneurs or serial entrepreneurs who failed in their prior business (see Gompers *et al*., 2006).

Empirical studies on DCs provide support to the importance of entrepreneurial learning for post-entry performances of newborn firms either by observing the direct impact between experience and survival (Parker, 1997), or by showing that in contexts characterized by substantial absence of learning opportunities the average survival is quite short (Barr,1998). 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 previously acquired in the same industry both increases the likelihood of founding a new business and contributes to a firm's better performance.

Nichter and Goldmark (2009) point to an additional channel by which learning on the job may positively affect the survival rate of newborn firms: indeed, previous work experience may expand entrepreneurs' social network, which in turn can positively affect post-entry performance (see also Barr, 1998; Kantis, Angelli and Koenig, 2004). However, the authors stress the differences between DCs and advanced countries for what concerns this link, the evidence about the DCs being quite controversial[11].

Finally - turning our attention to a managerial and organizational 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, due to their better ability in running and organizing complex activities (for an empirical validation of these relationships, see Cooper, Gimeno-Gascon and Woo, 1994; Cressy, 1996; Arrighetti and Vivarelli, 1999; Shane, 2001; Vivarelli, 2004).

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[11]A recent article by Frankish *et al.* (2013) question the idea that previous work experience affects firms performances. They propose that there are good reasons to expect no significant effects of work experience, *i.e*. the importance of chance, entrepreneurs' propensity to optimism and the unlikely event that two business situations are really identical. They use UK data to show that there is no significant evidence about entrepreneurial learning. It must be noted, however, that such results could to some extent be due to the peculiarity of the sample they use, due to institutional specificities of the UK business environment.

4.3 Financial constraints

Credit constraints and lack of financial capital in general should limit the rate of entry of new businesses, and both their likelihood of survival and rate of growth (see Carpenter and Petersen, 2002; Becchetti and Trovato, 2002; Aghion, Fally and Scarpetta, 2007). However, some recent microeconometric 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)[12].

At any rate, new entrepreneurial initiatives in the DCs are credit-rationed in the vast majority of cases due to lack of collateral, informational asymmetries and largely imperfect local capital markets (see Section 2). For this reason, micro and small firms in DCs rarely apply for and receive formal bank loans, and rely instead on other sources of credit like trade credit, overdrafts and informal loans (Bigsten *et al.*, 2003). Indeed, the lack of credit represents a severe impediment to growth of small firms in the early years of activity. For instance, Goedhuys and Sleuwaegen (2010), in a study investigating 947 small and medium entrepreneurial firms in several manufacturing firms in eleven Sub-Saharan African countries[13], report that financial constraints are singled out as the major obstacle (from between eleven alternatives) to a firm's growth in 5 countries out of 11. Consistently, in the previously-cited paper on Côte d'Ivoire by Goedhuys and Sleuwaegen (2000), the authors find that a lack of collateral significantly hampers firms' growth (ibidem, p.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 (see Yunus, 1999; Fogel, Lee and McCumber, 2011).

A somewhat more skeptical position is put forth by Akoten, Sawada and Otsuka (2006), who carried out an econometric test of the effects of credit rationing on the growth of 225 micro and small garment firms in Nairobi. Their results show that credit access does

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[12]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.

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

not affect significantly firms' growth, and moreover the factors affecting credit access are clearly different from those affecting firms' growth.

4.4 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.

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 augments the managerial capabilities which are necessary to run a business enterprise, but also increase the outside option for salaried employment in the formal sector of the economy. This is probably the reason why Van der Sluis, Van Praag and Vijverberg (2005), in their comprehensive survey, found that in the majority of DCs education lowers the likelihood of entering self-employment as contrasted with wage-earning 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, Kerr, and O'Connell (2011), 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. 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'[14]).

The evidence concerning the relationship between education and the post-entry performance of new businesses in DCs may also look controversial on the surface. For example, Kantis, Angelli and Koenig (2004) show that secondary school attainment yield no discernible impact on firm growth in Latin America. On the contrary, other studies like for instance, Van der Sluis, Van Praag and Vijverberg (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 and 2010),using data respectively from Côte d'Ivoire and from eleven 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)[15].

Nichter and Goldmark (2009) maintain that such apparent contradictions disappear if one takes into account a sort of "threshold effect" of education. Small firms with more educated owners are more likely to experience faster growth rates, but a country specific threshold should be reached in order for this effect to take place. For example, while in African countries the threshold enabling faster growth appears to be secondary school, in Latin America one can observe a higher threshold at the university level. Finally, it is also worth mentioning potential harmful effects of higher education, which may divert the attention of firms' owners to other business opportunities, who could end up paying little attention to the working of their actual business (Alvarez and Crespi, 2003).

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[14]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.

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

4.5 Technological change

If the underlying motivation to start a new firm is linked to innovative projects, then a better post-entry performance should be expected[16]. 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, Coad and Rao, 2008; Altindag, Zehir and Acar, 2011; Colombelli, Krafft and Quatraro, 2014) 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; Colombelli, Krafft and Quatraro, 2013)[17].

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. 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.

However, the impact of innovation on post-entry performance of newborn firms is strictly related to sectoral differences and ultimately to the differential patterns of specialization of countries discussed in Section 1. Actually, entrepreneurial dynamics in DC is more likely to occur in sectors which are far from the technological frontier; therefore, the prevalence of traditional and mature sectors makes these contexts less fertile for innovation-driven entrepreneurship. According to Siqueira and Bruton (2010), high-technology entrepreneurship in emerging economies is subject to greater resource constraints and higher levels of informality than in advanced countries. These two factors are likely to mitigate any possible positive effect of technology investments on firm performance.

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[16]For an updated survey on the vast available micro-evidence on the link between innovation and productivity, see Mohnen and Hall, 2013). For a discussion of the key role of innovation and R&D in young firms and SMEs in general, see Ortega-Argilés, Vivarelli and Voigt (2009) and Voigt and Moncada-Paternò-Castello (2012).

[17] For instance, Arrighetti and Vivarelli (1999), after applying a factor analysis to a sample of 147 Italian spinoffs, found that innovative factors (related both to the innovative motivations of the founder and to his/her previous innovative experience in the mother firm) 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).

Moreover, as far as technological change is concerned, a distinction must be done between low-income and middle-income DCs. In fact, the middle-income DCs are mainly importing innovation produced elsewhere in the global economy, while the low-income ones are often completely excluded from any innovative process (see Robbins and Gindling, 1999; Robbins, 2003; Lall, 2004; Lee and Vivarelli, 2006; Srholec, 2011).

Finally, the international diffusion of technologies is likely to be grounded on creative rather than passive adoption (Antonelli, 2006); therefore, technological congruence, institutional setting and governmental arrangements shape a country's capacity to absorb knowledge and technologies produced elsewhere (see Dosi and Nelson, 2013). "Social capabilities" represent exactly the set of cultural, political, commercial, industrial and financial institutions which create the condition in catching-up countries to absorb and exploit the technologies developed elsewhere (Abramovitz, 1986). For example, a study conducted on Brasil, Russia, India and China (the so-called BRIC) confirmed that their institutional specificities play a major role in shaping their rapidly growing economies (Gupta *et al.*, 2012; da Rocha, Ferreira da Silva and Carneiro, 2012; Kim, Park and Lee, 2013).

Nevertheless, in most DCs and even in BRIC, the role of R&D-driven new firms and domestic NTBFs[18] is extremely limited and so it is not surprising that very few studies try to link innovation with entrepreneurship within a DC context.

However, Santarelli and Tran (2011) studied entrepreneurship in Vietnam using a panel of regional-level data for 61 provinces over the period 2000-2008; among other outcomes, the author 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. As for post-entry performance, in the previously cited study by Goedhuys and Sleuwaegen (2010) on Africa, the innovative capability (proxied by a dummy for the introduction of new products) was found to increase a firm's annual employment growth by 2% on average.

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[18]Rather, R&D based initiatives in the DCs are often the outcome of the outsourcing by US, European and Japanese multinationals; see Moncada-Paternò-Castello, Vivarelli and Voigt, 2011.

4.6 Unemployment

As far as unemployment (or the fear of becoming unemployed, see Section 3) is concerned, the literature points out two stylized facts: 1) those who start a new business as an escape 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, Arrighetti and Vivarelli (1999)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.

As regards DCs, the literature is extremely scarce[19]. However, Wang (2006) found convincing evidence that unemployment had fostered start-ups in Taiwan (China) 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.

4.7 Alien minorities

A particular driver of new firm formation in DCs is the role played by ethnic minorities in generating above-the-average rates of entry and better post-entry performance

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[19]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.

among newborn firms. The basic hypothesis here 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 2),such as regulatory drawbacks, credit constraints and difficulties in accessing available inputs and technologies (see Kilby, 1983 and 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 (see 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 (see Elkan, 1988)[20].

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) 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.

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[20] 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, Mahagaonkar and Dienes, 2012).

5. Main findings and some policy suggestions

If one conclusion can be drawn from this study is that 'entrepreneurship' is made by very different "animals". 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 (see Sections 1 and 2). From a microeconomic point of view, far from being solely the result of the entrepreneurial 'creative destruction' process proposed by Schumpeterian advocates (see Schumpeter, 1943), 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 (see Sections 3 and 4). Therefore, both scholars and policy makers should bear some important caveats in mind.

Firstly, 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.

Secondly, *ex-ante* features may be predictors of survival chances and post-entry business performance. For instance, a larger size, previous experience, the absence of credit constraints, higher education and innovation can be considered as positive predictors of a higher likelihood of survival, while infrastructural and institutional drawbacks, the absence of an adequate incubator background and a previous state of unemployment can be seen as predictors of early failure.

Policy makers need to be able to disentangle these drivers and encourage a selected subsample of potential entrepreneurs (see Santarelli and Vivarelli, 2002 and 2007; Mason and Brown, 2013). 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 4.7) can be seen as an additional preferential trait when deciding how to target a policy addressed at sustaining progressive new firm formation.

However, on average, the DCs appear to be strongly affected by regressive factors inducing "defensive" and "necessity" start-ups, often concentrated in the informal sectors and doomed to early failure. In this context, the widespread diffusion of general, 'erga-omnes' entry subsidies as policy instruments in the developing countries is unfortunate[21] since they are very likely affected by standard policy failures, such as "deadweight" and "substitution" effects (see Vivarelli, 2012 and 2013). Indeed, '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.

Examples of targeted policy measures may include: 1) the public financial aid to innovative projects, otherwise neglected by a conservative and short-run-oriented capital market (see for instance the Korean government credit guarantee offered to technology-based SMEs suffering from funding problems; see Sohn and Kim, 2013); 2) the already mentioned (see Section 4.3) microcredit support, intended as a way of reducing those information and transaction costs − so common in the DCs − which affect both the screening and the financing of new promising businesses (see Yunus, 1999); 3) the public support to innovative start-ups generated by university spin-offs (for recent analyses of this perspective, see Bonaccorsi *et al.* 2013).

On the other hand, in the DCs more general market failures and regulatory constraints are obvious and severe, ranging from extreme financial rationing to lack of property rights, bribing, etc. (see Section 2). In this context, any entrepreneurial policy should consider a priority to remove the market, institutional and informational constraints which prevent potential entrepreneurs from starting a new business (see Acs and Virgill, 2009). From this respect, tailored subsidies and supports - as those briefly recalled above - should be coupled with framework and infrastructural policies, able to improve the business climate where new ventures can find a proper environment to start and grow.

To sum up, a proper entrepreneurial policy in the DCs should be able to combine a comprehensive macroeconomic approach addressed to release the major institutional

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[21]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".

constraints to entrepreneurship with a selective microeconomic support to the most promising potential entrepreneurs.

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