

# **The Opportunity Cost and Endowment Effects of Resources and Capabilities on Stages of Entrepreneurship**

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## *Abstract*

*In this paper, the start-up process is split conceptually into four entrepreneurial stages considering entrepreneurship, intending to start a new business in the next three years, nascent entrepreneurship and newly established business. We investigate the determinants of the start-up process using a multinomial logit model which allows the effects of resources and capabilities to vary across the different entrepreneurial stages. We employ a pooled Global Entrepreneurship Monitor database for the years 2006 to 2009, containing 8,269 usable observations of the East Midlands region in the United Kingdom, controlling for the local environmental effects. Our results show that the combinative role of human capital, experience and local context varies along the different stages of the entrepreneurial process. In the early stages the (negative) opportunity cost effect of resources dominates tends to reverse in advanced stages, where the (positive) endowment effect becomes stronger.*

## INTRODUCTION

Creation of new firms is considered to be important, not only during periods of economic downturn, but also during times of prosperity. New firms are regarded as a potential source of economic growth, innovation, employment opportunities and competitive pressures on incumbent firms that favour consumers (Aldrich 1999; Beck et al. 2005; Carree and Thurik 2006). Moreover, engaging in entrepreneurial activity is seen as a way of advancing socially: upward social mobility is one of the main consequences of entrepreneurial success (Blanden et al. 2005; Minniti and Lévesque 2008). Hence, promotion of business start-ups has remained a key agenda item for economic development policy in most developed and developing nations (Atherton 2006; Storey 2003). Yet despite the importance of new firms and the amount of research undertaken in this field, our understanding of how entrepreneurs create these remains limited (Arenius and Minniti 2005; Davidsson and Honig 2003). In particular, although, we know that start-up rates of small firms differ across countries and within regions, the role of individual resources and capabilities and contextual influences on different stages of entrepreneurship is under-researched (Van der Zwan et al. 2010; 2013).

Recent evidence from 69 Global Entrepreneurship Monitor (GEM) countries demonstrated that in 2012, about 14.7 percent of the adult population between the age of 18 to 64 years were actively involved in new-business endeavours, while 7.3 percent were owners of newly established business (Xavier et al. 2013). Yet there is a significant variation in the start-up rates between countries (Kelley et al. 2011; Levie and Hart 2011). To illustrate this point, amongst the more advanced economies, adult population involvement in early stage entrepreneurial activity varies markedly from 13 percent in the United States, to 10 percent in the UK, to only 4 percent in Italy and Japan, the lowest figure during the same period (Xavier et al., 2012; Hart and Levie, 2013). Some of the factors affecting cross-country differences in entrepreneurial activity have been acknowledged (e.g. Autio and Acs, 2010; Aidis et al. 2012; Estrin et al., 2013). Moreover, the determinants of entrepreneurial stages have been investigated at country level by Van der Zwan et al. (2010; 2013). In contrast, our understanding of regional entrepreneurial activity remains relatively limited (Tamásya, 2006; Fritsch and Mueller, 2006; McIntyre and McKee 2012; Williams and Williams 2011; Jayawarna et al. 2011; Lee et al. 2011), and to our best knowledge the stage of entrepreneurship approach has not been yet applied to explore the role of within country variation in the start-up process. Another particular gap in the literature is that while country level studies now distinguish between environmental and individual effects (again, e.g. Autio and Acs, 2010; Estrin et al., 2013), there is not much evidence of this approach applied at the regional level. Given that there is significant variation in entrepreneurship rates not only across but also within countries, such an examination at a regional level would help us gain an in-depth understanding of the combinative role of the individual level resource endowments and the local context along the different stages of the entrepreneurial process (see for example, Levie and Hart, 2012).

Accordingly, the objective of this study is to examine whether and to what extent both the individual level resource endowments and the local context combine to influence an individual's decision to engage in the different stages of the entrepreneurial process, controlling for regional characteristics. To this effect, we draw on the resource-based theory of entrepreneurship (Alvarez and Busenitz 2001).

At the same time, we overcome the limitations of previous studies that have investigated the determinants of entrepreneurship through the use of binary choice models (Blanchflower et al. 2001; Grilo and Irigoyen 2006; Vivarelli 2004). This does not consider the fact that the creation of a new firm is a process rather than an outcome of single binary choice and determinants are not constantly significant across the different stages of new firm formation (Davidsson 2006; Reynolds 2010). We show that the weighting of individual and contextual factors tend to change along the entrepreneurial stages, with contextual factors becoming less important in more advance stages. Consistent with this, we see our main contribution in

considering how the role of both various individual resources and context changes along the different stages of the entrepreneurial process.

This study distinguishes between four stages of new firm formation which are referred to as entrepreneurial stages. The stages include two pre start-up stages: considering and intending to start a business in the next three years and two early stages of new firm formation: nascent entrepreneurs and new business owners (see also: Reynolds et al. 2005). We examine determinants of the likelihood of being involved in these different entrepreneurial stages applying multinomial logit as an estimator on the Global Entrepreneurship Monitor (GEM) data (2006-2009) with 8,269 respondents who reside in the East Midlands region. The study contributes to the literature and discriminates across five categories – an entrepreneurial inactivity category and four stages of the entrepreneurial process (see also: Grilo and Thurik 2005b; Grilo and Thurik 2006; Vivarelli 2004). Our data allows for simultaneous testing of the effect of resources across these different stages at both the individual and the regional (sub-national) level.

The rest of the paper is organised as follows. In the next section we discuss the resource-based theory of entrepreneurship, and how this theoretical framework may help in explaining why some individuals engage in different stages of the entrepreneurial process while others do not. Based on this we derive our hypotheses. Then, we outline the methodology and discuss the database we drew upon. Following from this, we summarise the results of the multinomial logistic regressions as formal tests of the hypotheses. Finally, we offer a discussion and draw managerial and policy implications.

## **THEORETICAL FRAMEWORK AND HYPOTHESES**

The resource-based theory of entrepreneurship (RBT) explains why some individuals engage and others do not engage in entrepreneurial activities (Alvarez and Busenitz 2001). According to the RBT, (potential) entrepreneurs have individual level, specific capabilities that facilitate the recognition of new business opportunities and the assembling of appropriate resources that enables the creation of a new firm. The unique collections of resources and capabilities which are rare, valuable, inimitable and non-substitutable cannot be bought or sold on the market freely (Barney 1991; Barney et al. 2001; Peteraf 1993, 2006; Wernerfelt 1984, 2007), and require entrepreneurial effort to result in value adding activities. Below, we utilise this framework to discuss the importance of three broad types of resources hypothesised to be influencing the different stages of the entrepreneurial process.

## **FINANCIAL CAPITAL AS A RESOURCE FOR ENTREPRENEURSHIP**

It has been recognised that individuals often use personal income and wealth as a source of start-up capital (Fraser 2004; Gartner et al. 2004; Rouse and Jayawarna 2006; Korosteleva and Mickiewicz, 2011). Consistent with this, studies have shown that financial capital is important in determining the probability of becoming an entrepreneur and of entrepreneurial success (see Black et al. 1996; Blanchflower and Oswald 1998 for United Kingdom and; Evans and Leighton 1989; Evans and Jovanovic 1989; Holtz-Eakin et al. 1994 for United States). Such studies often the theory of financial constraints: individuals with substantial financial capital and find it easier to acquire resources, such as machinery and equipment, and start a new business to exploit business opportunities. In advanced economies with well developed financial systems, it is less likely that financial constraints will apply. However, it would appear that even there, entrepreneurs have idiosyncratic knowledge about the market potential of their projects, which is difficult to assess by external providers of finance. This in turn increases the cost of borrowing and/or lead to constraints in financing (Dunn and Holtz-Eakin 2000; Fairlie and Krashinsky 2012). Accordingly, those with lower levels of wealth and household income may not be able to compensate for lack of external funds with their own financial resources and this then prevents them from starting a new businesses or

leads to undercapitalisation (MacDonald 1996; Marlow and Carter 2004; Rouse and Kitching 2006).

However, others have challenged the financial constraints interpretations and have demonstrated that access to financial capital is not significantly associated with the probability of becoming an entrepreneur (Davidsson and Honig 2003; Kim et al. 2006). In these studies, it has been subsequently shown that an individual weighs his/her engagement in entrepreneurial activity in terms of opportunity costs in relation to his/her present income from employment. That is, an individual's decision to participate in entrepreneurial activity is taken after making two judgements – the possibility for generating additional income from a new business relative to the present level of income, and the possibility for increase in future income from present employment. Therefore, individuals with lower levels of income may find the opportunity cost to be very low in that they may lose very little or nothing by facing the uncertainty related to generating income from a new business. In the event where the business fails, an individual may find employment which offers similar levels of income. Even when the short-term projected income from the new business is similar to his/her current income flows, an individual would engage in the start-up process if there is a potential for higher long term income flows (Devine 1994; Fairlie 2004). Moreover, Sørensen (2000) suggests that some members of the labour force who are on higher income brackets benefit from rents generated from current employment specific skills. Therefore, individuals at higher income levels may find the loss of income from their present occupation outweighing the projected benefits from a new business.

In the same line, it has been indicated that the majority of people starting new firms do so lower levels of income (Aldrich 1999; Fraser 2004; Williams and Williams 2011), as most of them run small scale and home based enterprise (Jayawarna et al. 2011). Thus, while individuals in highly paying jobs can invest more financial resources in the start-up process (Dunn and Holtz-Eakin 2000; Hurst and Lusardi 2004), they may find entrepreneurial activities to be less appealing.

Both sides of the argument (financial constraints versus opportunity cost considerations) are well understood. We posit however that examining the entrepreneurial process enables us to distinguish between the influence of both factors across different stages. In particular, we posit that high household income individuals are less likely to exhibit entrepreneurial *intentions*. On the other hand, those with lowest income are likely to drop off in the more advanced stages of the entrepreneurial process due to resource limitations. Anderson and Miller (2003) found that higher socio-economic status provided better opportunities for entrepreneurs to access a wider range of resources, which may prove a decisive factor when the individual moves from intentions to actual business creation. Drawing on the above discussion, we propose the following hypotheses:

*Hypothesis 1a: Due to the low opportunity cost, individuals with low levels of household income will be more likely to engage in the early stages of entrepreneurial activity (considering entrepreneurship; entrepreneurial intentions) than those with higher levels of household income.*

*Hypothesis 1b: Due to financial constraints, individuals with low levels of financial resources will be less likely to enter the more advanced stages of entrepreneurial activity (nascent entrepreneurship; owners-managers of new firms).*

## **HUMAN CAPITAL ATTRIBUTES AND ENTREPRENEURSHIP**

The RBT predicts that individuals who possess higher levels of human capital will be better at perceiving viable business opportunities and should have superior abilities to successfully exploit these opportunities than those with lower levels of human capital (Alvarez and Busenitz 2001). As knowledge and skills are heterogeneously distributed across the adult

population, they may be important factors in understanding why some individuals but not others engage in entrepreneurial activity (Gartner et al. 2004). While both formal education and work experience are seen as proxies of human capital, they may or may not represent knowledge and skills relevant for the specific tasks such as creating a new firm (e.g. Martin et al. 2012; Unger et al. 2011). Yet evidence suggests that education and work experience are associated with successful transitions into entrepreneurship (Arenius and Minniti 2005; Grilo and Thurik 2008; Van der Zwan et al. 2010).

The literature provides several arguments on how formal education increases entrepreneurial success which may also apply to the prestart-up phases. Evidence suggests that highly educated people are believed to be better at solving complex problems (Cooper et al. 1994), which increases the capabilities of potential entrepreneurs to perform generic entrepreneurial tasks (Shane and Venkataraman 2000; Ucbasaran et al. 2008). This an individual's entrepreneurial alertness (Westhead et al. 2005), the likelihood of discovering opportunities that are not visible to other people (Shane 2000, 2003) and affects an individual's approach, planning and strategy to exploit the opportunities (Chandler and Hanks 1998; Frese et al. 2007). Moreover, consistent with the argument above, knowledge can help in acquiring other resources such as financial and physical capital (Brush et al. 2001; Colombo and Grilo 2005) or compensate for lack of financial resources which is a constraint suffered by many entrepreneurs (Evans and Leighton 1989) and facilitates access wider range of resources. Moreover, studies that examined the relationship between education and the probability of starting a new firm have reported a positive association between education and self-employment or nascent entrepreneurship (e.g. Davidsson and Honig 2003; Grilo and Thurik 2008; Kim et al. 2006; Aidis et al. 2012).

However, individuals attempt to receive compensation for their investment in human capital such as time and money spent on education (Becker 1964). Therefore, individuals who are highly educated may not choose to become entrepreneurs if entrepreneurship leads to reduced income compared to the perceived higher incomes from employment (Evans and Leighton 1989). However, once those who have invested more in their human capital engage in entrepreneurial activity, they are more likely to succeed (Cassar 2006). The argument here is parallel to the one developed in the previous section with respect to financial resources: both human and financial capital may be seen as income generating resources and therefore may play a similar role in subsequent stages of the entrepreneurial process. Opportunity cost of utilising own human capital may prevent individuals from considering entrepreneurship and forming entrepreneurial intentions. At the same time however human capital may help individuals in more advanced stages of the entrepreneurial process: to become nascent entrepreneurs and to become successful owners-managers of the new firms. Thus, individuals with higher levels of education are likely to succeed in entrepreneurship (i.e. in more advance stages). However, they are also more likely to be attracted to the labour market as potential high-wage employees, affecting their likelihood to consider entrepreneurship negatively (i.e. in less advanced stages). Thus, we posit the following hypotheses:

*Hypothesis 2a: Due to low opportunity cost, individuals with low level of education will have a significantly higher propensity to consider and intend to become entrepreneurs.*

*Hypothesis 2b: Due to better human capital endowment, individuals with low levels of education will be less likely to be engaged in the more advanced stages of entrepreneurship (nascent entrepreneurs and owners-managers of new firms).*

Parallel to education, the impact of work experience and employment status may reverse while we move along the subsequent entrepreneurial stages. A number of studies claim that unemployed individuals are more likely to be forced into engaging in self-employment due to lack of employment opportunities (Grilo and Thurik 2005a; Thompson et al. 2012). This issue represents an exemplification of the more general 'push motive', which has been defined as negative circumstances, which induce individuals to establish new firms (Storey

1994; Ritsilä and Tervo 2002). These arguments suggest that early stage entrepreneurial activities would be expected to be higher for those not in employment. From this perspective, unemployed individuals could be thought to be in a hurry to establish their own businesses because they cannot find suitable employment opportunities in the labour market (Evans and Leighton 1989). Based on these grounds, it may be argued that being in employment has a negative impact on early-stage entrepreneurial activities (considering entrepreneurship and entrepreneurial intentions).

On the other hand however, employment comes with skills and access to resources that those out of work do not possess. Even if many of those out of work had been employed previously, their skills are eroded, in particular when the spells out of employment are longer. Again, here our argument is parallel to the line of reasoning we developed with respect to finance and education (hypotheses 1b and 2b). Those with worse resource endowment (here: experience, proxied by current employment), are motivated to consider entrepreneurship, as their opportunity cost is lower. However, at the same time, the same lack of resources makes them more likely to drop before reaching the more advanced stages of the entrepreneurial process. Therefore they are relatively less represented in the more advanced stages of the entrepreneurial process. Accordingly, the following hypotheses are proposed:

*Hypothesis 3a: Individuals who are currently employed are less likely to engage in the early stages of the entrepreneurial process (considering entrepreneurship and entrepreneurial intentions) than individuals who do not work.*

*Hypothesis 3b: Individuals who are employed are more likely to be nascent entrepreneurs than individuals who do not work.*

While education and experience may form generic resources appropriable for entrepreneurship, more specific skills matter as well. The RBT assumes that possession of valuable rare resources provides the basis for value creation (Alvarez and Busenitz 2001; Kirzner 1973; Shane 2003). In this study, entrepreneurship-specific human capital assets are defined as knowledge and skills that facilitate starting a new firm (Arenius and Minniti 2005). requires an individual to assemble new resources and combine them with resources he/she already possess or reconfiguring of existing resources (Alvarez and Busenitz 2001). Moreover, an entrepreneur is characterised by unique knowledge of how to organise ideas and capabilities in order to produce new products and services, under uncertain conditions (Alvarez and Barney 2007; Miller 2007). Entrepreneurial experiments tend to be undertaken in conditions where information does not yet exist, therefore it cannot be collected or analysed hence they often find traditional, codified, forms of strategic planning to be harmful or even misleading in new projects (Alvarez and Barney 2007).

Extant evidence from empirical testing confirms already that lower levels of entrepreneurship-specific skills hinders prospective entrepreneurs from starting a new firm (Davidsson 1991; Gnyawali and Fogel 1994; Arenius and Minniti 2005; Davidsson and Honig 2003; Koellinger et al. 2007). However, again, we extend this perspective arguing that the impact of specific skills will vary along the stages of entrepreneurship. The will affect positively all the stages, but more so in the advanced phases. The reason for this is that while motivation will be affected positively in all the stages, capacity to deliver will become critical in the phase of implementation. It is, therefore, in the latter stage that the impact of specific entrepreneurial skills will have stronger impact. Based on the above discussion, we propose the following hypotheses:

*Hypothesis 4a: Individuals with higher levels of specific entrepreneurial knowledge and skills will have a significantly higher propensity to consider entrepreneurship and to have entrepreneurial intentions (i.e. to be involved in earliest stages of the entrepreneurial process).*

*Hypothesis 4b: Individuals with higher levels of specific entrepreneurial knowledge and skills will be more likely to engage in nascent entrepreneurship. Moreover, this effect will be stronger for nascent entrepreneurs than for the earliest stage of entrepreneurial process).*

## **THE LOCAL CONTEXT: ENTREPRENEURSHIP CAPITAL**

The hypotheses above were concerned with the individual characteristics of potential entrepreneurs. However, the local environment may also have a critical impact on the individual decision to engage in various stages of entrepreneurship. This local social environment is often considered in the context of social network relationships. Notably, networks provide social capital that may be appropriable for entrepreneurship (Adler and Kwon 2002; Anderson 2008). The social network approach to understanding the role of social capital in creation of new firms is based on Granovetter's (1973) classical work which made a distinction between strong and weak ties (see also, Coleman (1988) Networks characterised by frequent and repeated homogenous social interaction are labelled strong ties (Son and Lin 2008). If entrepreneurs are connected to others with whom they have little emotional engagement with, these heterogeneous relationships are defined as weak ties (Batjargal et al. 2009; Granovetter 1973). Both come with different benefits and may play a different role along the entrepreneurial process. However, weak ties that reach beyond family and close friends may provide individuals with access to wider and more diverse knowledge that may prove particularly useful for business activity. This is particularly true, if the profile of the local social environment exhibits entrepreneurial traits. It determines the capacity of individuals to form entrepreneurship-relevant weak ties that help individuals to enter into entrepreneurship. In particular, *entrepreneurship capital* is a "specific type of social capital that explicitly generates" the start-up of new firms by offering explicitly or implicit knowledge and privileged access to a wide range of tangible resources (Audretsch and Keilbach 2004: 421). Audretsch and Keilbach (2004, 2005) define a specific type of social capital as the regional milieu of agents that may facilitate or hinder new firm formation and proxy it with the exiting rates of entrepreneurial activity. Their approach is consistent with Burt (2009) who emphasizes that information that goes through the weak ties is of great importance. Evidence suggest that these bridging ties are highly correlated to entrepreneurship-relevant information and tangible capital (Carter et al. 2003; Davidsson and Honig 2003; Hughes et al. 2007). Audretsch and Keilbach (2004) point out that regions with higher density of entrepreneurship (and therefore higher likelihood of relevant weak ties) facilitate the creation of new innovative firms leading to agglomeration and persistence effects.

We wish to contribute to this discussion by stressing several points. Firstly, weak social ties are most useful when they include individuals with knowledge specific to entrepreneurship. Second, the more entrepreneurship is in the local environment the more likely that the social contacts could produce more valuable knowledge to individuals. In particular, it can be argued that if an individual has a network relationship with another person, the individual will indirectly share the knowledge of the contacts of the other person (see, Dubini and Aldrich 1991). In such a scenario, both parties will end up knowing what the other party knows resulting in the flow of information between the individual and the other person's contacts. Therefore, in the local environment dense in the entrepreneurship activity, there is more knowledge available to support entrepreneurship. Third, Audretsch and Keilbach (2004) argue that regions with higher levels entrepreneurship capital facilitate start-ups because it serves as a conduit for knowledge spill-over. A novel element we stress here is linking this argument to stages of entrepreneurship. We posit that an individual acquires knowledge and skills relevant to entrepreneurship as he/she moves along the subsequent stages of entrepreneurship (or up the 'entrepreneurial ladder' applying Van der Zwan et al (2010) terminology). Therefore, an opportunity to draw from the environment is most critical in the earliest stages of entrepreneurial activities. Moreover, in late stages of the entrepreneurial process, i.e. when the entrepreneurial project materialises, these positive environmental effects may be to some extent counterbalanced by the impact of competition: those who



intend to start new businesses do not face competition from other business owners; those who move to become owners-managers of new firms do. Based on these arguments we propose the following hypotheses:

*Hypothesis 5a: Higher density of established owners-managers of businesses in local neighbourhood will have a positive effect on individual's likelihood to consider entrepreneurship and to intend to start a new business (i.e. to be involved in early stages of the entrepreneurial process).*

*Hypothesis 5b: Higher density of established owners-managers of businesses in local neighbourhood will have a positive effect on an individual's likelihood to become a nascent entrepreneur and owner-manager of a new business. However, this positive effect will be weaker as compared with the likelihood of an individual to engage in the early stages of entrepreneurial activity.*

## **METHODOLOGY**

As stated earlier, this study examines the influence of resources and capabilities on stages of entrepreneurial activity. Consistent with MacKelvie and Davidsson (2009), we see resources as broadly defined assets that can be utilised in production (in our case: finance; local social capital appropriable for entrepreneurship). In turn, capabilities relate to competences that are critical to combine and apply resources successfully (proxied by education; experience; entrepreneurship specific skills). This framework led us to formulate hypotheses related to the differentiated impact of both resources and competences on subsequent stages of the entrepreneurial process.

We test these hypotheses with two large databases combined: 2006 to 2009 GEM East Midlands region databases and the English Index of Multiple Deprivation (2007 release) databases. The UK GEM database consists of random samples, stratified by region, of the working age (16 to 64 years) population contacted by telephone random dialling techniques by a professional marketing company. The East Midlands sample size varied from 2,296 in 2007 to 2,807 in 2009 resulting in a total of 8,269 usable cases. This data was used to generate indicators of stages of the entrepreneurial process among surveyed individuals. Accordingly, our sample is segregated into (i) individuals with no business ownership intention, (ii) those considering entrepreneurship, (iii) intending starting a business within the next three years. Following that, (iv) the nascent entrepreneurship phase includes 'individuals who are actively trying to start a business', according to a number of standardized criteria specified in the GEM questionnaire (Reynolds et al., 2005). Finally in the second version of our estimating model we also include (v) owners of newly established businesses (up to 42 months). However, for the latter model we include a smaller number of explanatory variables: some are excluded due to our concern with simultaneity (endogeneity) issues.

The variable related to our hypotheses include: household income categories (H1a), past experience of being the business angel (H1b), highest educational attainment (H2a, H2b), being in employment (H3a, H3b), self-assessed knowledge and skills specific to entrepreneurship (H4a, H4b), and finally, prevalence rate of owners-managers of established businesses more than 42 years old) in the local neighbourhood (H5a, H5b). In addition, we include a number of controls at the individual level, as standard in the empirical literature on aspects of entrepreneurship: age, gender, being an owner-manager of an already existing business, personally knowing other entrepreneurs.

A number of studies have demonstrated that a region's socio-economic environment matters for entrepreneurship (A. R. Anderson and Miller 2003; Cooke et al. 2005; Kalantaridis and Bika 2006). Lee et al (2011) showed that in deprived areas with social networks restricted to bonding capital, strong ties do not facilitate access to motivation and material resources. We measure the community's level of socio-economic development using the English Index of

Multiple Deprivation (IMD) and its component indicators for 2,732 Lower Layer Super Output Areas (LSOA) communities with an average population of 1,500 people (DCLG 2010). After cleaning the postcodes in the GEM database, we were able to classify each respondent in the East Midlands into their LSOA by inputting yearly datasets separately for all the postcodes from the GEM database into the GeoConvert facility. Then, we ranked each respondent according to their local community's level of socio-economic development (IMD). We then split the sample into ten equal groups according to their rank using the *quintile* facility in Stata. In addition we include fixed effects related to the higher level territorial units, that is counties, and an indicator variable representing urban versus rural areas (at LSOA level).

Table 1 below shows the description of variables used in this study.

{Table 1}

Correlation coefficients for the variables used in the regressions are presented in Table 2. Although some variables show some correlation, problems for further analysis are not anticipated since the coefficient values are not excessively high.

{Table 2}

## **ESTIMATION STRATEGY**

We apply a multinomial logit estimator (MNL) to predict the likelihood that an individual is engaged in any entrepreneurial stage, given his/her resource endowment and capability. MNL extends the principles of linear models to give a better treatment of dependent variables that come in a form of a range of outcomes over the choice set. It is based on weaker assumptions than a corresponding ordered logit model, allowing for different variable coefficients for different outcomes. The model allows for study of a mixture of continuous and categorical independent variables explaining a set categorical outcomes by estimating a separate equation for each outcome compared with the reference one, which in our case is taken as lack of any entrepreneurial activity or intention (Long and Freese 2003). Maximum likelihood estimations are used to calculate the logit coefficients (Gelman and Hill 2006), which we transform to odd ratios to facilitate interpretation. More precisely, coefficients are interpreted in terms of multinomial relative risk ratios (RRR) for each stage of the entrepreneurial process. The RRR for a MNL are obtained by exponentiating the multinomial logit coefficients. A RRR above one unit indicates that the risk of the outcome falling in the comparison group relative to the risk of the outcome falling in the reference group increases as the variable increases. If the RRR is less than one unit, it indicates that the risk of the outcome falling in the comparison group relative to the outcome falling in the referent group decreases as the variable increases.

Our modelling was as follows. We first estimated the model with four options: (i) passive - no entrepreneurial activity, a baseline, reference category; (ii) considering entrepreneurship, (iii) intending to start-up a business, (iv) nascent entrepreneurs. As our explanatory variable, we use those listed in Table 1 above. We verified that we could not reject the model assumptions as valid on the basis of Small-Hsiao tests of Independent Irrelevant Alternative, which came as highly insignificant for each of the outcomes. In addition we performed a series of Wald tests for differences in coefficients between all pairs of outcomes. These all came as significant at least at 1% level, indicating there is no ground for combining any of the alternatives into one. This is the first of our models presented below in the results section.

For the second model we use one additional option, which is (v) being the owner-manager of a new ('baby') firm, less than 42 months old. However, applying this richer model comes at cost, as it creates simultaneity (endogeneity) problems with some of the variables. In particular level of household income, personally knowing other entrepreneurs, entrepreneurial skills and being in employment are all affected by being involved in managing a business operation. In addition, we no longer can treat ownership of new business as one of controls, as that would now cause circularity. Accordingly, we now drop all these variables from the model. As before, we verified that the model holds based on the Small-Hsiao tests. Interestingly however, this time we could not reject the hypothesis that the coefficients for 'considering entrepreneurship' and 'intending to start a business' are the same. Accordingly, in our final specification we combined these two into way. As should be expected based on Small-Hsiao tests, the coefficients related to other outcomes are not affected. Thus, as a result, the second model we report is based again on four, albeit different, outcome categories: (i) passive - no entrepreneurial activity, a baseline, reference category; (ii) considering entrepreneurship or intending to start-up a business, (iii) nascent entrepreneurs, (iv) owners-managers of new businesses (up to 42 months old).

Before presenting the results, some measures for explanatory power and diagnostics of the models are presented in Table 1.2 below and discussed in the following section. As highlighted above, we fit two models, one with three entrepreneurial options and all relevant explanatory variables we have at our disposal, and one with four entrepreneurial options (including young businesses). However some variables were omitted due to concerns of simultaneity (endogeneity). In the first model we add young business ownership to our set of explanatory variables, as it is not treated as one of the choice options there.

We also investigated the strength of the interrelationship among the explanatory variables using the *collin* Stata package to check for multicollinearity. Multicollinearity may cause inflated standard errors and sensitivity of coefficients to small changes in the set of explanatory variables. Tolerance and variance inflation factor (VIF) are the two common measures of multicollinearity. Our results show that the minimum tolerance is 0.5850 and the highest VIF is 1.85, which indicates that the interrelationship among the explanatory variables is weak. Therefore, we can conclude that there is not a cause for concern since there is no variable with a tolerance less than 0.1 or a VIF of 10 or greater. Moreover, any potential impact of multicollinearity on stability of coefficients is counterbalanced by large sample size.

While most of our hypotheses relate to individual level variables, H5a and H5b concern an environmental effect, of the entrepreneurship capital. However, while calculating our standard errors and the related significance levels, we should account for the fact that our observations are interdependent within each local community (LSOA). Accordingly, we cluster our standard errors on the LSOA to make them robust. We utilise the *cluster* option in Stata that adjusts for intra-class correlation in standard errors. Thus, this deals with the issue related to the possibility that individuals residing in the same LSOA are more likely to have similar characteristics, resources and capabilities which differentiate them from those residing in other LSOA. Such correlation, if left unattended, is a violation of one of the classical assumptions of the regression models.

## **ESTIMATION RESULTS: HYPOTHESES TESTING**

Lastly, we can conclude that our MNL is sufficiently robust and of our main results of the two models discussed above in Table 3 below. In summarising the results, we concentrate on the variables which represent our hypotheses. These relate to: income level, human capital and the environmental effect of entrepreneurial capital. The relative risk ratios of the maximum likelihood estimations for the two models are presented in Tables 3 and 4 below.

We supplement it with reporting results of additional tests comparing coefficients across different outcomes and some visual illustration of the results.

{Table 3 and 4}

Based on Model 1, our results indicate that lower levels of household income, “Up to £11,500”, increases the probability of considering entrepreneurship and of entrepreneurial intentions (low opportunity cost considerations), confirming H1a. However, we could not confirm H1b: we did not find that becoming a nascent entrepreneur is positively related to income (resource constraints considerations), holding all other variables in the model constant. Once we confirmed additional tests for differences in coefficients across the outcomes, we found differences for most of the categories insignificant. That leads us to conclude that the lowest income category is uniformly associated with considering entrepreneurship, intending and being engaged in start-ups (nascent entrepreneurship).

The results concerning human capital based on educational variables are more complex, as they turned out to be sensitive to which outcomes categories we rely upon. We expected that the coefficients on educational variables will change once we move along the entrepreneurial stages, but what we found is that the critical difference is not between considering and intentions on one side versus start-ups and new firms on another, but between start-ups and owners-managers of new firms. What we found, in particular, is that for new firms (‘baby businesses’), the effect of higher competences dominates, producing a pattern consistent with H2b. However, once we move one step back to nascent entrepreneurs, this positive effect of education is counterbalanced by the negative effect of the opportunity cost of education, consistent with H2a. Thus, while a lower percentage of individuals are involved in starting new companies (nascent entrepreneurs), that percentage rises amongst those who were able to move to the stage of new firms. This difference is illustrated by Figures 1 and 2 below that are based on Model 2 results (in Table 4). The difference between two outcomes is significant at 5% level for those respondents who have no formal education.

{Figures 1 and 2}

The argument proposed in Hypothesis 3a is that individuals who are employed may not choose to be entrepreneurs because entrepreneurship may lead to reduced income compared to employment opportunities. The results are consistent with Hypothesis 3a indicating that being employed reduces likelihood of considering entrepreneurship and intenders. Moreover, in line with H3b, the difference in coefficients between intenders and those involved in start-up (nascent entrepreneurs) is statistically significant at 1% level. As expected, the impact of higher opportunity cost (which prevents individuals to consider and intend to become entrepreneurs) is counterbalanced by better individual capabilities, and the odds ratio changes from below one to above one indicating positive impact.

Consistent with our theoretical prediction (H4a), our results show that entrepreneurship specific skills and knowledge increases the probability of considering and intending to become an entrepreneur and also to become a nascent entrepreneur. Moreover, consistent with H4b, the impact of specific skills for nascent entrepreneurs is much stronger and the difference in coefficients between intenders and nascent entrepreneurs is significant at 1% level.

Based on Hypothesis 5a, we expected that the presence of other entrepreneurs in the neighbourhood is likely to have positive effects on considering entrepreneurship in addition to knowing other entrepreneurs individually. That is, additional knowledge is more likely to be accessed via any personal contacts, indirectly, and role models became more accessible and visible in the local environment. This provides access to emotional, socio-expressive resources and specific skills, which makes entrepreneurship a more attractive choice for individuals. This is confirmed for the ‘considering entrepreneurship’ category at 5% significance level. However, according to H5b, we argued that once we move along the

subsequent stages of the entrepreneurial project, an individual's chances of engaging in entrepreneurial activity will diminish. That is, in environments where density of business activity is high, the negative effect of competition will counterbalance the positive effects. Indeed, we can see from Model 1 and Model 2 that the coefficient on business density diminishes and becomes insignificant. However, we cannot formally confirm H5b as the difference in coefficients in adjacent models is not significant in both models.

The above discussion was focused on statistically significant effects from testing our set of hypotheses. In this section we explore the magnitude of the results. To this effect, we present below odd ratio plots (also named factor change coefficients), which show by which factor, a unit increase in an explanatory variable affects the of choosing any of the outcomes (entrepreneurial stages) holding all other variables at their mean value (Gelman and Hill 2006; Long and Freese 2003). The four entrepreneurial stages are labelled as: considering (C), intenders (I), nascent entrepreneurs (N) and 'baby' (new) business owners (B), and contrasted with entrepreneurial passivity, i.e. no business ownership intentions (P). On the graphs below, the effect of each explanatory variable represents a separate row; negative effects relative to the reference outcome are on the left hand side and positive on the right hand side, and the distance between any pair of outcomes (letters) represents the magnitude of the effects. Any pair effects that are not distinguishable at least at 10% are connected by a line.

As we presented the effects of education in more detail at Figures 1 and 2 above, at Figure 3 (based on Model 1) we now summarize the effects of the categorical explanatory variables related to other hypotheses. Moving up the income categories makes entrepreneurship less likely compared to the lowest income group (omitted). At the highest income category (over £50k of the head of the household), the sequence of entrepreneurial stages becomes clearly separated, with being involved in nascent entrepreneurship becoming least likely, followed by considering and intentions, and finally being passive in terms of entrepreneurship. We may conclude that for income, the opportunity cost effect of entrepreneurial activity dominates over the resource endowment effect.

Interestingly, a different, nonlinear story emerges for the next variable, employment. Here, as predicted by H3a, the opportunity cost effect affects considering and entrepreneurial intentions negatively. However, it is significantly different for nascent entrepreneurs, where it becomes counterbalanced by the resource effect. Finally, the magnitude of the effects of entrepreneurship specific skills dominates the effects of other variables, and the ordering of the effects is consistent with H4a and H4b: these competences have positive impact on considering and entrepreneurial intentions, yet an even stronger effect on the likelihood to be involved in nascent entrepreneurship.

{Figure 3}

Last but not least, in Figure 4 and 5 we illustrate the magnitude of effects for our control variables (based on Model 2). Figure 4 illustrates the effect of age, where we see a clear separation of entrepreneurial stages and a consistent diagonal pattern of all the effects, implying that with age, the entrepreneurial activity gets weaker. All age categories effects should be seen as relative to the reference, which is the youngest age group. The likelihood of considering and intending entrepreneurship (C) declined consistently with age. So does the likelihood of being involved in nascent entrepreneurial activity (N), but for the two groups above the youngest the odds are above one, implying that the likelihood first increases with age, to decline later on. The ownership of new ('baby') businesses (B) exhibits a similar pattern.

The first row of Figure 5 illustrates the effects of gender that are significant, but of low magnitude. Men are more likely to be engaged in all stages of the entrepreneurial activity, and the effect is strongest for the most advanced stage of owners-managers of young businesses. Being an owner manager of an established business has a very strong effect on

the likelihood of considering, intentions and being involved in nascent entrepreneurial activity, which is again consistent with our emphasis on the opportunity cost perspective. However, for the advanced stage of ownership of new firms, the effect is counterbalanced by the positive impact of capabilities, entirely consistent with our main argument. Being a business angel in the past implies more likelihood of being engaged in entrepreneurship, reflecting both possession of/access to resources and capabilities. And finally, for comparison, urban versus rural area has no significant impact.

{Figures 4 and 5}

## **DISCUSSION AND CONCLUSION**

We are aware of some of the limitations of study that might have influenced the results. The GEM dataset does not have data on individual income level; therefore, head of household income data has been used, which could imply measurement errors. We may also be omitting important variables such as more detailed data work experience that would help in understanding how individual resource endowments affected an individual's probability to engage in entrepreneurial activity. Due to the nature of the dataset, we addressed the probability of engaging in any stage of the entrepreneurial process from a static view and surely this is inferior to a dynamic analysis, for the same individuals over time. Another limitation we need to keep in mind is that various types of resources are related. Income and financial resources often correlate well with human capital, therefore the two effects may become confound and attenuated.

With these caveats in mind, in this paper we argue that the influence of individual resources and capabilities changes as we move along the entrepreneurial stages. In the early stages of the entrepreneurial process, the opportunity cost effect prevails and the individuals with better resource endowment are discouraged to form entrepreneurial intentions. However, for those who enter entrepreneurship, this effect is reversed. Possession and access to resources and capabilities imply that it becomes easier to reach the advanced stages of entrepreneurship. For most of the dimensions we consider, this pattern is confirmed. This has important managerial and policy-making implications.

A better understanding of the interplay between resources and capabilities and entrepreneurial stages enable us to identify where the risk of discontinuity is the highest. For those with low resource endowment, motivation and forming intentions is not a major problem. The main issue becomes how to overcome resource limitations in more advanced stages and complete the project successfully. In contrast, quality resource endowment demotivates from entering entrepreneurial activity due to the higher opportunity cost. Therefore, emphasis on motivation and intentions is critical, so that those with resources become aware of entrepreneurial opportunities. An important further qualification is that the impact of generic and entrepreneurship specific skills differ. The former have an ambiguous effect as we just sketched, yet the latter have a clear positive effect on both intentions and on successful delivery of the entrepreneurial project. Thus one way to encourage individuals with quality resource endowment to enter entrepreneurship is simply to complement those with entrepreneurship-specific skills.

Finally, we highlight the role of the local environment and clarify how the environmental effects change along the entrepreneurial process. In this, and other cases, distinguishing clearly between the different stages of entrepreneurship enables us to resolve some of the ambiguities found in the literature we highlighted above. In particular, while the vibrant business environment has an unambiguous positive impact on considering entrepreneurship, affecting motivation by presence of role models, this positive effect is not carried over to further stages of entrepreneurship due to increased competition. Ultimately, successful new

firms need to rely on rare, valuable, inimitable and non-substitutable resources (Barney 1991; Barney et al. 2001; Peteraf 1993, 2006; Wernerfelt 1984, 2007), and this is why in the more advanced stages of the entrepreneurial process, the impact of individual resources and capabilities dominates over the environmental effects. Thus, we are back to stress the role of the individual in entrepreneurship, bringing us back to the core intuitions of entrepreneurship research that we inherited from Schumpeter (1934), Kirzner (1973) and others.

**Table 1. Variable Description**

<b>Variable</b>	<b>Description</b>	<b>Percentage</b>
<i>Dependent variable</i>		
Entrepreneurial activity	passive, no business ownership intention	86.43
	considering	5.19
	intending in the next three years	3.43
	nascent (start-up)	2.29
	new business owners ("baby businesses")	2.66
<i>Individual resources and capabilities</i>		
Income (head of household)	up to £11500	22.97
	£11501-£20000	22.03
	£20001-£50000	23.01
	over £50000	16.16
	not stated	15.83
Education	No formal qualifications	14.26
	GCSE	27.42
	A level	19.45
	Vocational and other	12.34
	Batchelor	19.55
	Masters	6.06
Doctorate	0.93	
In employment	the respondent is employed	74.3
	not in employment	25.7
Entrepreneurship skills ("have the knowledge, skill and experience required to start a business")	yes	31.9
	no	68.1
Knowing other entrepreneurs (personally knows someone who has started a business in the previous 2 y)	yes	14.8
	no	85.2
Business angel (in past 3 years)	yes	12.0
	no	88.0
Owner of another established business (over 42 months old)	yes	6.0
	no	94.0
Age of respondent	18 to 24	6.2
	25 to 34	15.37
	35 to 44	25.70
	45 to 55	26.11
	55 to 64	26.62
Gender	female	59.4
	male	40.6
<i>Environmental variables</i>		
Owners-managers of established businesses (local prevalence rate; based on LSOA)	Owners-managers of businesses over 42 months old (prevalence rate in LSOA)	(Mean 0.06 SD 12.98)
IMD (index of multiple deprivation, based on LSOA)	Categorised into 10 even categories based on the quantile function	
Urban status (based on LSOA)	urban	67.3
	rural	32.7
County	Derby	4.57
	Derbyshire	18.82
	Leicester	5.49
	Leicestershire	15.76
	Lincolnshire	17.17
	Northamptonshire	14.62
	Nottingham	4.73
	Nottinghamshire	18.02
Rutland	0.82	



**Table 2. Correlations:** Spearman rho correlation coefficients for individual level variables and community characteristics

	Min	Max	0	1	2	3	4	5	6	7	8	9	10	11	12
0 Stages of entrepreneurship			1												
1 Income	1	5	0.01	1											
2 Education	1	7	0.12	0.18	1										
3 Employment Status	0	1	0.05	0.12	0.16	1									
4 Knowledge & skills	0	1	0.37	0.08	0.12	0.13	1								
5 Knowing other entrepreneurs	0	1	0.32	0.06	0.13	0.09	0.35	1							
6 Business angel	0	1	0.09	0.03	0.03	0.31	0.12	0.16	1						
7 Established businesses	0	1	-0.10	0.07	0.00	0.13	0.30	0.12	0.07	1					
8 Established businesses (prevalence rate)	0	1	-0.03	0.07	0.02	0.07	0.17	0.07	0.03	0.49	1				
9 Age	0	1	-0.15	-0.04	-0.17	-0.15	-0.01	-0.11	0.01	0.09	0.06	1			
10 Male	1	5	0.13	0.01	0.05	0.10	0.19	0.11	0.04	0.12	0.04	0.03	1		
11 Index of multiple deprivation	0	1	-0.01	-0.19	-0.18	-0.10	-0.08	-0.04	-0.02	-0.06	-0.16	-0.08	-0.00	1	
12 Urban	1	9	-0.02	-0.08	-0.04	-0.01	-0.06	-0.01	-0.01	-0.06	-0.15	-0.07	0.03	0.27	1

**Table 3. Multinomial logit estimates. Model 1**

	(1) Considering	(2) Intentions	(3) Nascent
<b>EXPLANATORY VARIABLES</b>			
Income: £11,501-£20,000	0.762 (0.129)	0.614* (0.127)	0.655+ (0.157)
Income: £20,001-£50,000	0.884 (0.151)	0.686+ (0.142)	0.436*** (0.109)
Income: over £50,000	0.666* (0.127)	0.559* (0.134)	0.311*** (0.089)
Income: not stated	0.647* (0.128)	0.432** (0.115)	0.543* (0.161)
Education: GCSE	1.725* (0.424)	1.655 (0.599)	0.561+ (0.166)
Education: A level	2.323*** (0.586)	3.205** (1.157)	0.929 (0.273)
Education: vocational and others	1.559+ (0.420)	2.309* (0.873)	0.715 (0.238)
Education: bachelor	2.751*** (0.689)	3.311*** (1.188)	0.940 (0.302)
Education: masters	1.957* (0.599)	2.213+ (0.969)	1.229 (0.429)
Education: doctorate	3.058* (1.551)	6.995*** (4.049)	1.091 (0.959)
In employment	0.745* (0.107)	0.580** (0.099)	1.257 (0.308)
Has know, skill to do start-up	5.568*** (0.640)	6.793*** (1.042)	16.726*** (3.895)
Owns&man bus w/ profit/salar up to 42 mt	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Personally know ent past 2 yr	2.414*** (0.310)	4.413*** (0.666)	4.350*** (0.784)
Business angel in past 3 year	1.293 (0.555)	2.693** (0.969)	1.378 (0.726)
Owns&man bus w/ profit/salar over 42 mth	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Average owns&man bus w/ profit/salar over 42m	3.183* (1.522)	2.193 (1.456)	3.229 (2.622)
Age: 25 to 34	0.621* (0.126)	0.607* (0.142)	1.360 (0.544)
Age: 35 to 44	0.453*** (0.087)	0.539** (0.119)	1.139 (0.427)
Age: 45 to 55	0.343*** (0.068)	0.403*** (0.094)	0.748 (0.293)
Age: 55 to 64	0.205*** (0.046)	0.168*** (0.047)	0.479+ (0.200)
Male	1.915*** (0.211)	1.625*** (0.221)	1.276 (0.209)
imd1==2	0.913 (0.206)	1.147 (0.303)	1.840+ (0.669)
imd1==3	0.938 (0.222)	1.209 (0.328)	1.799 (0.653)
imd1==4	0.999	0.963	1.640

	(0.228)	(0.278)	(0.618)
imd1==5	0.935	0.845	1.192
	(0.222)	(0.259)	(0.510)
imd1==6	1.220	1.073	2.072*
	(0.285)	(0.328)	(0.766)
imd1==7	1.099	0.778	1.448
	(0.264)	(0.251)	(0.632)
imd1==8	1.333	0.800	1.095
	(0.327)	(0.261)	(0.474)
imd1==9	1.216	1.058	2.596*
	(0.317)	(0.372)	(1.102)
imd1==10	1.371	0.636	0.758
	(0.415)	(0.252)	(0.428)
Lower super output urban area	0.911	1.015	0.753
	(0.119)	(0.159)	(0.139)
County: Derbyshire	1.367+	1.035	0.597+
	(0.251)	(0.255)	(0.158)
County: Leicester	1.383+	1.701*	1.156
	(0.262)	(0.388)	(0.287)
County: Leicestershire	1.464*	1.312	0.804
	(0.284)	(0.336)	(0.232)
County: Lincolnshire	1.241	1.419	0.604+
	(0.262)	(0.342)	(0.173)
County: Northamptonshire	1.485	1.692	1.373
	(0.406)	(0.601)	(0.483)
County: Nottingham	1.842*	3.648***	1.458
	(0.518)	(1.176)	(0.584)
County: Nottinghamshire	1.391	1.826	0.657
	(0.378)	(0.728)	(0.364)
County: Rutland	2.484*	2.919*	1.150
	(1.029)	(1.440)	(0.792)
Constant	0.027***	0.014***	0.006***
	(0.011)	(0.007)	(0.004)
Observations	8,269	8,269	8,269
Log Likelihood	-2939.816	-2939.816	-2939.816
DF	120.000	120.000	120.000
Wald's chi2	64846.316	64846.316	64846.316
No of obs	8269.000	8269.000	8269.000
Pseudo R--squared	0.225	0.225	0.225

**Table 4. Multinomial logit estimates. Model 2**

EXPLANATORY VARIABLES	(1) Considering & Intentions	(2) Nascent	(3) Baby businesses
Education: GCSE	2.030*** (0.411)	0.817 (0.231)	1.948* (0.649)
Education: A level	3.263*** (0.673)	1.315 (0.379)	2.319* (0.807)
Education: vocational and others	2.525*** (0.548)	1.198 (0.369)	2.210* (0.798)
Education: bachelor	3.705*** (0.745)	1.354 (0.403)	2.732** (0.936)
Education: masters	2.798*** (0.688)	1.793+ (0.607)	4.016*** (1.486)
Education: doctorate	5.468*** (2.066)	1.490 (1.172)	4.864** (2.785)
Business angel in past 3 years	5.506*** (1.490)	5.581*** (2.687)	9.881*** (3.446)
Owns&man bus w/ profit/salar over 42 mth	0.000*** (0.000)	0.000*** (0.000)	0.053*** (0.043)
Average owns&man bus w/ profit/salar over 42 mth	2.280* (0.871)	2.023 (1.470)	1.865 (1.300)
Age: 25 to 34	0.754+ (0.112)	1.964+ (0.721)	3.096* (1.390)
Age: 35 to 44	0.581*** (0.080)	1.546 (0.522)	3.645** (1.595)
Age: 45 to 55	0.417*** (0.061)	1.024 (0.364)	1.824 (0.821)
Age: 55 to 64	0.236*** (0.041)	0.631 (0.244)	1.413 (0.652)
Male	2.274*** (0.189)	1.855*** (0.297)	3.496*** (0.501)
imd1==2	1.025 (0.175)	1.963+ (0.707)	1.259 (0.329)
imd1==3	1.066 (0.195)	2.023* (0.718)	1.728* (0.443)
imd1==4	0.977 (0.175)	1.696 (0.611)	1.288 (0.346)
imd1==5	0.980 (0.177)	1.450 (0.585)	1.157 (0.333)
imd1==6	1.124 (0.210)	2.096* (0.759)	0.845 (0.293)
imd1==7	0.887 (0.171)	1.343 (0.531)	0.451+ (0.186)
imd1==8	1.150 (0.215)	1.371 (0.558)	1.223 (0.394)
imd1==9	1.125 (0.238)	2.684* (1.124)	1.104 (0.404)
imd1==10	1.106 (0.254)	0.878 (0.455)	1.003 (0.452)
Lower super output urban area	0.914 (0.091)	0.777 (0.140)	0.658** (0.103)
County: Derbyshire	1.275+ (0.254)	0.613+ (0.455)	1.041 (0.452)

	(0.182)	(0.159)	(0.245)
County: Leicester	1.447*	1.077	0.971
	(0.208)	(0.266)	(0.237)
County: Leicestershire	1.357*	0.755	1.007
	(0.206)	(0.205)	(0.243)
County: Lincolnshire	1.350+	0.581+	1.280
	(0.219)	(0.162)	(0.295)
County: Northamptonshire	1.549*	1.205	1.152
	(0.328)	(0.384)	(0.515)
County: Nottingham	2.120***	1.120	1.398
	(0.424)	(0.406)	(0.560)
County: Nottinghamshire	1.466+	0.592	1.117
	(0.335)	(0.302)	(0.446)
County: Rutland	2.461**	0.993	1.251
	(0.792)	(0.632)	(0.798)
Constant	0.041***	0.013***	0.003***
	(0.012)	(0.007)	(0.002)
Observations	8,269	8,269	8,269
Log Likelihood	-3906.661	-3906.661	-3906.661
DF	96.000	96.000	96.000
Wald's chi2	39791.058	39791.058	39791.058
No of obs	8269.000	8269.000	8269.000
Pseudo R--squared	0.092	0.092	0.092

Notes: + significant at 10%, \* 5%, \*\* 1%, \*\*\* 1%. Clustered standard errors. Omitted category for counties: Derby.

Figure 1. Predictive margins of education for owners-managers of new firms (baby businesses)

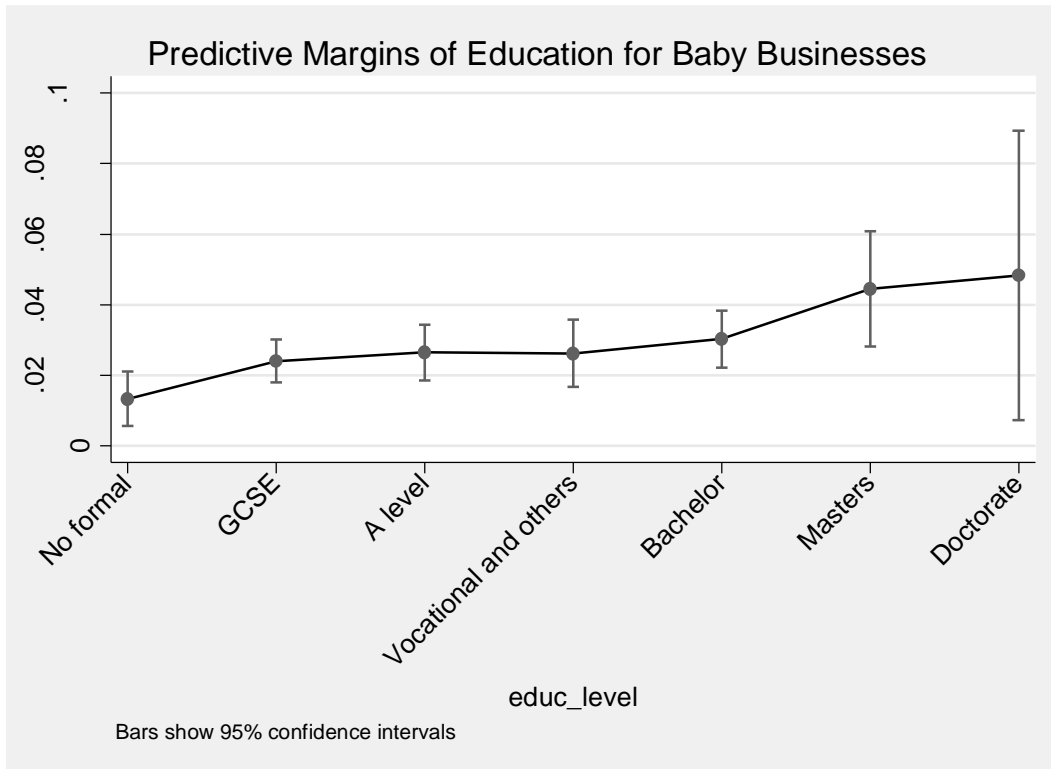


Figure 2. Predictive margins of education for nascent entrepreneurs (start-ups)

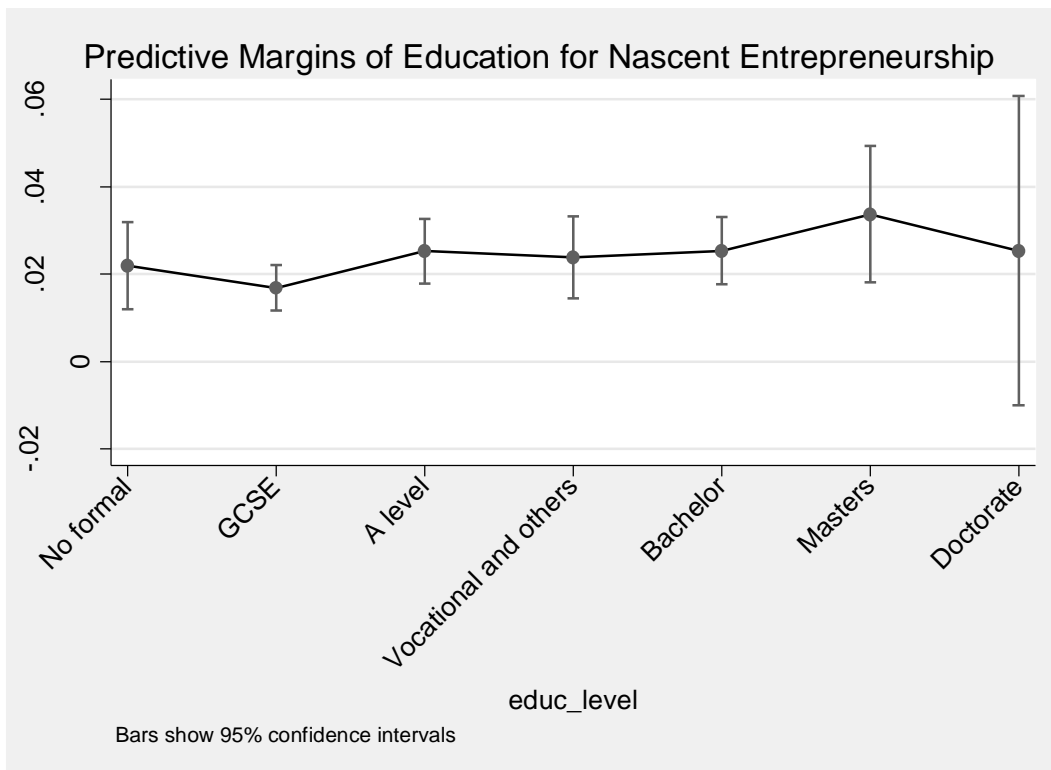


Figure 3. Factor changes in odds of entrepreneurial stages.  
 Income categories, being in employment, entrepreneurial skills, local entrepreneurial capital

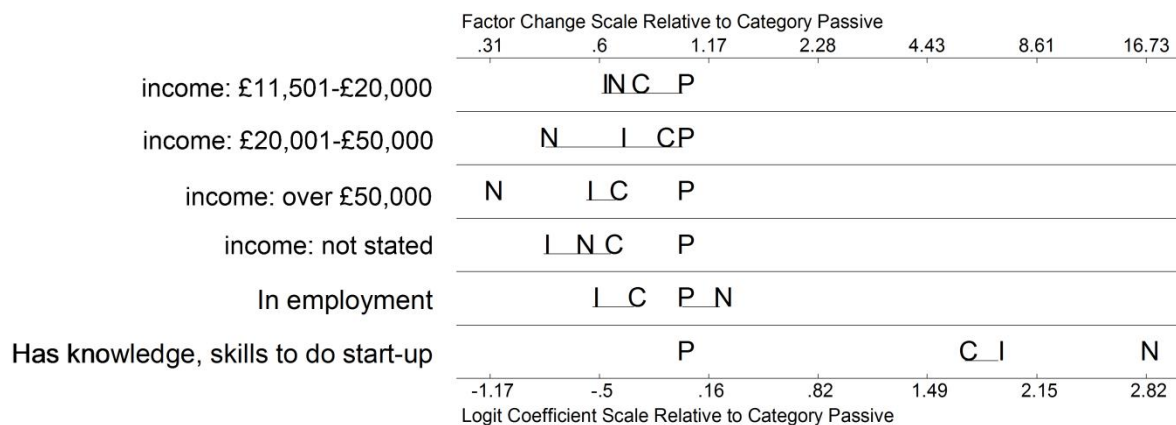


Figure 4. Factor changes in odds of entrepreneurial stages. Age.

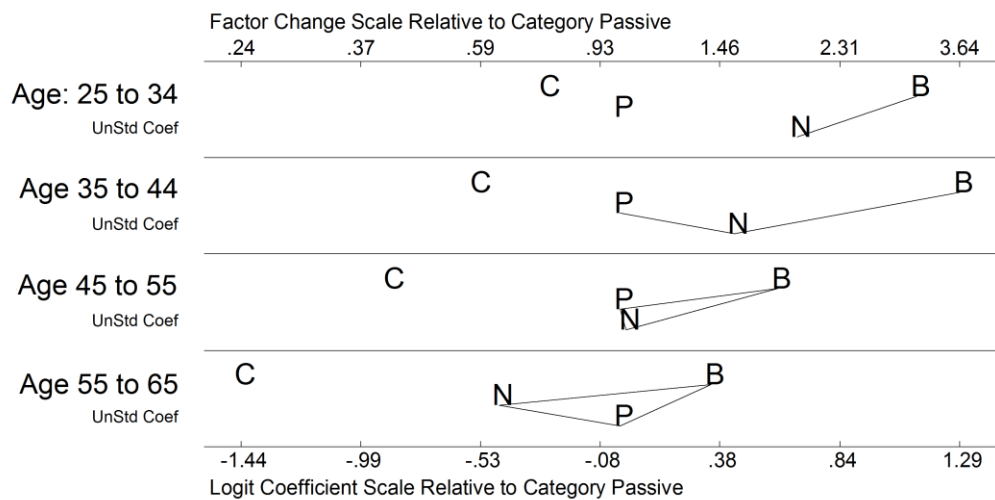
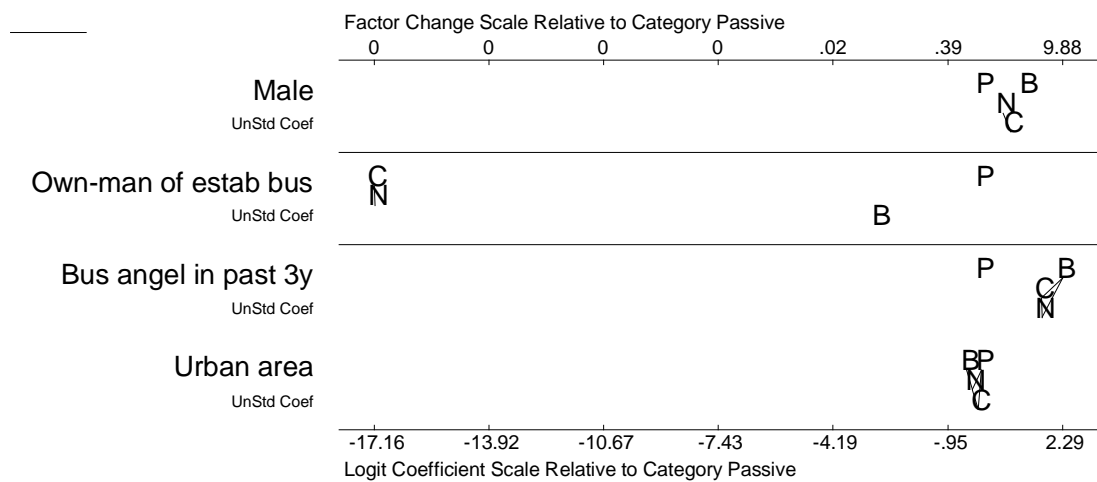


Figure 4. Factor changes in odds of entrepreneurial stages.

Gender, ownership of established businesses, business angel in the past, urban area.





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