An examination of the determinants of entrepreneurship at the regional level: The case of East Midlands region

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Despite the importance of new firms to the economy, determinants of start-ups have mainly been examined at a country level and discussion of regional entrepreneurial activity has received less attention. Since there are significant variations in entrepreneurship rates across and within countries, such an investigation at a regional level would help in gaining an in-depth understanding of the impact of the individual level resource endowments and neighbourhood characteristics on an individual's decision to engage in entrepreneurial activity.

The main aim of the thesis is to explore various theories of entrepreneurship and develop integrated frameworks for examining the determinants of entrepreneurial activity at a neighbourhood level in the East Midlands region in England. The specific objectives of the thesis are to examine how the individual level resources and the neighbourhood characteristics: (i) combine to influence an individual to engage in the different stages of the entrepreneurial process, (ii) influence natives and migrants to engage in start up activity and (iii) influence women and men to become self-employed and ambitious entrepreneurs. In terms of the methodology, the empirical analysis is based on two databases combined: 2006 to 2009 GEM East Midlands region and the English Index of Multiple Deprivation dataset. Based on the critical review of the literature on entrepreneurship the thesis develop theoretical frameworks which led to formulate hypotheses related to the differentiated impact of both individual and neighbourhood level factors on the propensity of an individual to be involved in entrepreneurial activity. The findings indicate that the determinants of entrepreneurial activity vary with human, financial and the local environment factors affecting the entrepreneurial process. Finally, the thesis calls for caution when developing and applying generic and specific policy measures aimed at promoting entry into entrepreneurship

Entrepreneurship, entrepreneurial activity, small firms, self-employment, growth ambitions

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CHAPTER ONE

1 INTRODUCTION

The main aim of this thesis is to critically review the theories of entrepreneurship and provide evidence on factors that influence an individual's decision to engage in entrepreneurial activity and apply these to a lower neighbourhood level with special reference to the East Midlands region in the United Kingdom (UK). New firms are considered to be vital in all economies because they are a potential source of economic growth, innovation, employment opportunities and their ability to respond to shocks rapidly. Hence, promotion of business start-ups has remained a key agenda item for economic development policy in most developed and developing nations. Although we already know that start-up rates of small firms differ across countries and within regions, the role of individual and neighbourhood level factors on entrepreneurship is under-researched.

Despite the importance of new firms to the local, regional and national economies, determinants of start ups have mainly been examined at a country level and discussion of local or regional entrepreneurial activity has received less attention. Furthermore, country level studies now distinguish between individual and environmental effects but there is not much evidence of this approach applied at the regional level. Since there are significant variations in entrepreneurship rates not only across but also within countries, such an investigation at a regional level would help us to gain an in-depth understanding of the influence of the individual level resource endowments and the local environment on an individual's decision to engage in entrepreneurial activity.

The thesis critically explores various theories of entrepreneurship and applies these to the regional level, i.e. East Midlands. The three specific objectives of the thesis are:

- To examine whether and to what extent both the individual level resource endowments and the resources in the local environment combine to influence an individual's decision to engage in the different stages of the entrepreneurial process.
- To examine how individual and neighbourhood level factors influence natives and migrants' decision to engage in start up activity.
- To examine how individual level resource endowments and neighbourhood characteristics influence women and men's decision to become self-employed and ambitious entrepreneurs.

Based on the critical review of the literature on entrepreneurship I developed theoretical frameworks which led to the formation of hypotheses related to the differentiated impact of both individual and neighbourhood level factors on the propensity of an individual to be involved in entrepreneurial activity. Throughout the thesis, the emphasis is on differences between the types of entrepreneurs and, in particular, by comparing and contrasting the determinants of entry into entrepreneurial activity.

In terms of the methodology, the empirical analysis is based on two large databases combined: 2006 to 2009 Global Entrepreneurship Monitor (GEM) East Midlands region and the English Index of Multiple Deprivation (IMD) databases. The database consists of random samples, stratified by region, of the working age (18 to 64 years) population. This data was used to generate different types of indicators of the entrepreneurs and determinants among the surveyed individuals. The thesis uses various econometric techniques in order to test the hypotheses.

This dataset is used in Chapter Two to generate indicators of the different stages of the entrepreneurial process: (i) individuals with no business ownership intention, (ii) those considering entrepreneurship, (iii) individuals intending to start a business within the next three years, (iv) the nascent entrepreneurship phase includes 'individuals who are actively trying to start a business' and (v) owners of newly established businesses (up to 42 months). Variables related to the hypotheses include: household income categories (H1a and H1b), highest educational attainment (H2a and H2b), being in employment (H3a and H3b), self-assessed knowledge and skills specific to entrepreneurship (H4a and H4b), and prevalence rate of owners-managers of established businesses in the neighbourhood (H5a and H5b). For the empirical investigation of the determinants of being involved in the different stages of the entrepreneurial process, Chapter Two apply a multinomial logit as an estimator on the GEM data (2006-2009) containing 8,269 respondents who reside in the East Midlands region. Odd ratio plots (i.e. factor change coefficients) are also presented in this chapter.

In Chapter Three, the start-up empirical model is based on data drawn from the combined GEM and IMD database covering four years (2006 to 2009) generated through surveys and consists of random and stratified samples of at least 2,000 individuals per country. The East Midlands sample size varied from 1,786 to 2,255 between the 2006 and 2009 resulting in a total of 8,347 usable cases. This data is used to generate indicators of entrepreneurial activity, individual and neighbourhood level predictors. The depended variable, start-up, include individuals between the working ages of 18 to 64 years who are actively involved in creating a new firm and have not paid any salaries and wages for more than three months and individuals who own or manage a business that have paid wages and salaries for a period not exceeding forty two months. This chapter model start-up as a function of the quality of individual and neighbourhood level factors related to the hypotheses: share of migrants in the neighbourhood (i.e. regional migrants and immigrants) (H1), migrant (i.e. regional migrant and

immigrant) x number of years in region (H2), migrant x share of knowing other entrepreneurs (H3), share of business owners (H4) and, migrant x share of business owners (H5a and H5b). In this chapter, the models are estimated using the maximum likelihood probit which takes account of the discrete nature of the dependent variable to test various hypotheses. Since the coefficients only indicate the direction of the influence on the probability of becoming an entrepreneur, therefore, the chapter reports marginal effects.

For the empirical analysis, Chapter Four also use the combined GEM and the IMD database. The East Midlands sample comprised of 8,347 observations of which 424 are nascent entrepreneurs. This data is used to generate proxies of transition into the start-up process among men and women living in communities with similar levels of socio-economic deprivation. The depended variable includes (i) individuals with no intentions of engaging in any form of entrepreneurial activity (passive), (ii) individuals who are self-employed and (iii) ambitious entrepreneurs - which is a proxy for individuals who at the time of entry aspire to create one or more jobs excluding the owners over a period of five years and entrepreneurs and those who at the time of entry employed others. This chapter model self-employment and growth ambitions as a function of the quality of variables related to the hypotheses: female x general human capital (H2a) female x specific human capital (H2b), female x the share of business owners in the neighbourhood (H3), wealth (H4) and household income (H5), while gender (H1) remain as the main individual level predictors in the specifications. In this chapter, the multinomial logit estimator (MNL) is employed to predict the differences in the likelihood that male and female potential entrepreneurs to choose either to become self employed or ambitious entrepreneurs given their human, social, financial capital and wealth.

The rest of the thesis is structured as follows. After this chapter, Chapter Two investigate the effect of individual level resource endowments and the local environment on the different

stages of entrepreneurial process. It begins by providing an overview of the significant variation in the start-up rates between countries. This chapter argues that although some of the factors affecting cross-country differences in entrepreneurial activity are already known (Aidis et al. 2012; Autio and Acs 2010; Estrin et al. 2013a) and the determinants of entrepreneurial stages have been investigated at country level by Van der Zwan et al (2010; 2013), the stage of entrepreneurship approach has not been yet applied to investigate the role of within country variation in the start-up process. It also argued that while country level studies make a distinction between individual and environmental effects (e.g. Estrin et al. 2013a), there is not much evidence of this approach being applied at the regional level. Therefore, such an investigation at a regional level would help in providing an enhanced understanding of the role of the individual level resource endowments and the local environment along the different stages of the entrepreneurial process.

Chapter Two builds on the literature of the resource-based theory of entrepreneurship (RBT) (Alvarez and Busenitz 2001). It argues that entrepreneurs have unique collections of resources and specific capabilities that facilitate the recognition of new business opportunities and the assembling of appropriate resources that enables the creation of a new firm. In this chapter, resources are defined as assets that can be utilised during the creation of a new firm (such as financial capital, education and being in employment) and capabilities are domain specific competences (proxied by entrepreneurship specific skills and share of owners of small firms in the neighbourhood) that are critical in combining and applying resources successfully. The conceptual framework proposed here led to the formation of hypotheses related to the differences in the impact of both resources and capabilities on different stages of the entrepreneurial process in East Midlands region.

This chapter examines the determinants of different stages of entrepreneurship in the East Midlands region empirically. In this chapter, a thorough empirical analysis was conducted controlling for wide range of individual and neighbourhood level factors and some of these factors have been overlooked in previous studies of entrepreneurship. Furthermore, qualitative evidence provided in the literature indicates the need for an empirical investigation of the determinants of different stages of entrepreneurship discussed above. After contextualising the theories at a regional level, the chapter developed and tested several empirical models using a wide range of individual and neighbourhood level factors including a number of robustness checks. Data used for the empirical analysis is based on two large combined databases: GEM East Midlands region and the IMD. The dataset contains useful information on wide range of factors related to the characteristics of the entrepreneurs, individual level resource endowments, capabilities and the local social and economic context. The findings indicate that higher opportunity costs prevents individuals with better resources from engaging in the early stages of the entrepreneurial process (i.e. considering and intentions). However, for those who choose to engage in the entrepreneurial process, this effect is reversed. The results suggest that possession and access to better individual level resources and capabilities make it easier to progress to the advanced stages of entrepreneurship. This phenomenon holds for most of the factors considered in Chapter Two.

The findings also indicate that the local economic environment has a positive impact on early stages of the entrepreneurial process, i.e. considering entrepreneurship and intentions, but this positive effect is not carried over to the advanced stages entrepreneurship – nascent and new business. When comparing and contrasting the impact of individual level resources and the local economic environment, the findings of this chapter support the resource-based theory of entrepreneurship which state that entrepreneurs have specific capabilities that facilitate the recognition of new business opportunities and the assembling of appropriate

resources that enables the creation of a new firm (Alvarez and Busenitz 2001). Hence the findings show that in the advanced stages of the entrepreneurial process – nascent and baby businesses - the impact of individual resources and capabilities dominates over the local economic environmental effects.

Chapter Three builds on the literature from various strands of the entrepreneurship theories. This chapter argues that despite the great contributions made by previous studies in enhancing knowledge about the regional determinants of entrepreneurial activity, these studies did not fully engage with the actual mechanisms through which regional characteristics affect entrepreneurs. The chapter posit that even regional characteristics which may be considered as important may not have direct impact but might have an indirect effect on an individual's attitude in favour of or against choosing an entrepreneurial career. Therefore, to overcome some of the shortcomings of previous studies, various theories should be integrated in order to develop a broad and comprehensive research framework for the analysis of regional start-up activity. The chapter also argues that there is need to take into account the differences in neighbourhood characteristics and their effect on the start-up activity. Moreover, the investigation of the determinants of start-up cannot be considered to be complete without the inclusion of the impact of individual level characteristics on the decision to engage in the start-up process. Therefore, investigation of the potential mechanisms through which regional characteristics affect individual entrepreneurship requires combining aggregated data at the neighbourhood level with individual level data. The entrepreneurship literature also shows that previous empirical studies were hampered by a limited choice of variables. Moreover the determinants of start-up at the regional level are under researched, with many of the previous studies concentrating on the regional determinants of start-up instead of both – i.e. regional characteristics and characteristics of the potential entrepreneurs – and a fewer attempts have been made to combine or link the regional characteristics with characteristics of the different

types of potential entrepreneurs. Motivated by the fact that the total early stage entrepreneurial activity (TEA) remained constant during the period (2007 - 2009) when the share of the foreign born in the East Midlands region rose by about 3%, this chapter brings together insights from various theories in order to develop an integrative framework which include three regional characteristics at the neighbourhood level: knowledge creation base, local economic environment and entrepreneurial culture. This framework informs the empirical investigation of the propensity of different types of potential entrepreneurs to engage in start-up activity in the East Midlands region.

This chapter develops and tests a number of empirical models using a wide range of factors. To examine the determinants of the probability to engage in entrepreneurial activity, a maximum likelihood probit is employed as an estimator on the combined GEM and IMD dataset with 8,347 respondents who reside in 2,732 LSOAs in the East Midlands region. This dataset provides valuable information on a wide range of the characteristics of the individual and neighbourhood. In terms of the role of the regional characteristics, in particular, the knowledge creation base, the share of immigrants and share of business owners have a positive effect on the propensity of an individual to become a nascent entrepreneur. However, this chapter did not find evidence that the share of regional migrants in the neighbourhood increase the likelihood of an individual to be involved in start-up activity. These findings point to the important role of the neighbourhood characteristics, and how the effect of the local environmental on start-up activities differs between the migrant groups. This evidence lead to the assumption that at least Florida (2004) was not completely wrong when he proposed the hypothesis about the positive effects of creative people on innovation and entrepreneurship. Regarding the interaction term of a regional migrant and categories of years in region and a regional migrant and categories of years in region, Chapter Three find no evidence that an

increase in the number of years a migrant has lived in the region lowers or increases their likelihood of engaging in start-up activity.

Chapter Three also found that the local economic environment (proxied by share of people who know other entrepreneurs in the neighbourhood) has no significant effect on the likelihood of an individual to become an entrepreneur. When an interaction term of regional migrant and share of individuals who know other entrepreneurs and, immigrant and share of individuals who know other entrepreneurs are included in the same model, being a regional migrant increases the likelihood of being involved in start-up but a regional migrant does not expect a lower or higher probability of starting a new firm when the group of individuals who know other entrepreneurs in the neighbourhood increases in size. But being an immigrant does not raise or lower the likelihood of being involved in start-up. When the interaction term of regional migrant and share of individuals who know other entrepreneurs is excluded in the model the direct effect of being a regional migrant on start-up decreases but remain significant when predicting start-up and the interaction term is negative and insignificant. The fact that when both a regional migrants and an immigrant interacts with a group of people who know other entrepreneurs in their neighbourhood increase the likelihood of a regional migrant to be involved in start-up suggest that regional migrant's start-up activities are driven by the presence of immigrants in the neighbourhood.

Finally, in terms of the entrepreneurial culture, Chapter Three finds that a higher share of owners of established businesses in the neighbourhood increases the probability of an individual to start a new business. When an interaction term of origin and share of owners of established businesses is included, the direct effect of being a regional migrant and being an immigrant becomes insignificant when predicting the probability of being involved in start-up activities but the interaction terms becomes significant. The findings indicate that being a

regional migrant does not raise or lower the probability of engaging in start-up activities, but a regional migrant would expect an increase in the likeliness to engage in start-up activities when they interact with business owners in their neighbourhood. In contrast, the findings indicate that being an immigrant does not raise or lower the probability of engaging in start-up activities, however, an immigrant would expect his/her propensity to engage in start-up activities to decrease when they interact with business owners in their neighbourhood. This chapter also finds that when the interaction term of a regional migrant and share of owners of established businesses is excluded in the model, the direct effect of being a regional migrant becomes significant yet direct effect of being an immigrant remain insignificant when predicting the likelihood of start-up, but the interaction term (immigrant x share of business owners) remains negative and significant. The overall conclusion of this chapter is that regional start-up activities is explained as a function of the knowledge creation base, local economic environmental factors and entrepreneurial culture and point to the importance of employing an integrative framework for investigating the determinants of start-up activities at the neighbourhood level.

Chapter Four builds on the literature of the occupational choice theory. It argues that while much is already known about the characteristics of the firms from business demographic datasets (see Anyadike-Danes et al. 2009; BERR 2008) and the GEM data (see Levie and Hart 2010; Marlow et al. 2012) provide evidence of a significant and persistent gap in early-stage entrepreneurial activity between men and women, these studies are descriptive. Empirical investigations of how the characteristics of founders influence women versus men's start-ups and growth ambitions differently have received less attention. Given that women's entry decision is known to be driven by different motives from those of men, understanding which factors facilitates or hinder birth of women and men's start-ups and growth ambitions is important since new firms are considered as a potential source of economic growth,

employment opportunities and competitiveness for particular regions. This chapter makes a distinction between ambitious entrepreneurs and self-employed. The distinction between the two types of entrepreneurs is particularly important for a region such as East Midlands when designing specific policy proposals aimed at promoting entrepreneurship and business growth among men and women. This distinction has been overlooked to a greater extent in the entrepreneurship literature. Chapter Four extends this discussion with the theoretical and empirical investigation of entrepreneurship focusing on the importance of the characteristics of the entrepreneur on self-employment and ambitious start-ups in the East Midland region. Empirical evidence explaining the differences remains scarce.

The empirical evidence provided in Chapter Four is based on the combined GEM East Midlands and the IMD dataset. In this chapter, the MNL is employed to predict the differences in the likelihood that male and female potential entrepreneurs choose to either become self employed or ambitious entrepreneurs given their human, social, financial capital and accumulated wealth. The findings indicate that being female does not lower or raise the likelihood of becoming self-employed but women were less likely to become ambitious entrepreneurs than men. The results indicate that being female increases the probability to become self-employed but their preferences for being self-employed declines as the level of education increases. The results also show higher opportunity costs discouraged women with higher levels of education to become self-employed. Therefore, lower opportunity cost motivated women with lower levels of education to become self-employed. Specific human capital and social capital does not provide women with any comparative advantages in their propensity to become self-employed or ambitious entrepreneurs. As for the effect of wealth, I found that the quality of living conditions (housing) does not motivate or demotivate men from becoming self-employed or ambitious entrepreneurs. In contrast, the effect of good living conditions of houses located in less deprived areas discouraged women from becoming self-

employed. However, I also found that the effect of good living conditions motivated women to become ambitious entrepreneurs. Given that women in the top quintile of the wealth categories are less likely to report the willingness to take a risky gamble of becoming ambitious entrepreneurs than women in the middle quintile of the housing categories suggest that it is less likely that binding liquidity constraints exist. Lastly, possession or access to higher levels of household income discouraged men from entering entrepreneurship. However, I found that higher levels of household income do not offer any additional benefits to women above those offered by lower levels of income. From a policy perspective, the findings are important in understanding the factors that motivates entrepreneurial activity. Moreover, the gender differences on the effect of resources on the probability to become self-employed or ambitious entrepreneur offers guidance to practitioners and policy makers on the distinct types of resources that are important to women and men. The findings suggest the need for selective policy measures to be adopted in order to promote entry in entrepreneurship.

Finally, Chapter Five brings together findings drawn from three empirical chapters of the thesis and proposes policy measures aimed at promoting the different types of entrepreneurs to engage in entrepreneurship. This chapters draws on the main findings of the thesis to develop policy proposals taking into account the unique features of the neighbourhoods in the East Midlands region. It argues that despite the importance of generic policy measures that are designed to improve the enterprise sector as whole, specific policy measures are more important and should be applied in order to solve some of problems experienced by the different types of entrepreneurs identified in the thesis. This chapter also identify the contributions of the present thesis to the existing body of knowledge and highlights some of the limitations which form insights for future research. I believe this is the first study of regional determinants of entrepreneurial activity at the neighbourhood level in the UK and, therefore sets the research framework for future research in the field of entrepreneurship

CHAPTER TWO

2 THE INFLUENCE OF RESOURCE ENDOWMENTS AND CAPABILITIES ON ENTREPRENEURSHIP

2.1 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. 2012). Yet there is a significant variation in the start-up rates between countries (Kelley et al. 2011a; Levie and Hart 2011a). 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). 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), 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 are significant variations 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 a wide range of individual level factors and regional characteristics. To this effect, I draw on the resource-based theory of entrepreneurship (Alvarez and Busenitz 2001).

At the same time, I 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). These studies do 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). I 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, I see my 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). I examine determinants of the likelihood of being involved in these different entrepreneurial stages by 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 by discriminating across five categories – an entrepreneurial inactivity category and four stages of the entrepreneurial process (e.g. Grilo and Thurik 2005b; Grilo and Thurik 2006; Vivarelli 2004). The 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 chapter is organised as follows. In the next section I 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 I derive the hypotheses. This is followed by an outline the methodology and a discussion of the database I draw upon. Following from this, I summarise the results of the multinomial logistic regressions as formal tests of the hypotheses. Finally, I offer a discussion and draw managerial and policy implications.

2.2 THEORETICAL FRAMEWORK AND HYPOTHESES

There is no doubt that entrepreneurship plays a pivotal role in the evolution of industries and economies. Schumpeter was among the first to emphasise the importance of entrepreneurship and new firm creation for economic development. According to Schumpeter, economic development emerges through a process of creative destruction where the old industrial structure is constantly challenged and changed by newly established innovative firms (Schumpeter 1934). In Schumpeter's work, the role played by new firms in economic development is quite clear but what is not clear is how these new firms are created. In his interpretation of entrepreneurship, he assumed that the qualities and talent required in starting a new firm were homogenously distributed across the adult population (Fagerberg 2003) which is problematic.

A related long standing controversy within the entrepreneurship field has been the debate about whether entrepreneurs are "born or made" which can be traced back to the Max Weber who argued that the cultural context played a major role in influencing the emergence of entrepreneurship (Schmude et al. 2008). Others argued that entrepreneurs differ from non-entrepreneurs in terms of their psychological traits (Carland et al. 1988; Delmar 2000; Stanworth et al. 1989). However, research has failed to find empirical support for the traits approach (see Gartner 1989). Instead, recent studies have focused on the tangible and intangible resources that individuals possess or may have access to which may hinder or facilitate entrepreneurship (Alvarez and Busenitz 2001; Perks and Medway 2012; Rouse and Jayawarna 2011).

Fewer studies have focused on the individual (including his or her resources) and the role played by local social structures in influencing new firm creation at a neighbourhood level. In a recent review of the entrepreneurship literature, the role of social context has been

emphasised in the European entrepreneurship research and the role of an individual in the US entrepreneurship research (see Blackburn and Smallbone 2008; Brush et al. 2008; Schmude et al. 2008). In this chapter, I attempt to combine the role of an individual (including his or her resources) in influencing new firm creation with the role of their situational context.

New firm creation and start up activities are not precise terms. In depicting new firm creation and start up activities, a number of researchers have suggested that new firms develop through a sequential stage-based process (Grilo and Thurik 2005a; Reynolds 1997; Rotefoss and Kolvereid 2005; Smith et al. 1985). In a recent study of the entrepreneurial process, Grilo and Thurik distinguished between seven stages in which an individual has to progress through in the entrepreneurial process: “never thought about it, thinking about it, taking steps for starting up, having a young business, having an older business, gave up and no longer in business” (2008: 1114). In order to capture the impact of resources on an individual’s engagement in entrepreneurship, there is a need to study individuals at the earliest stage of new firm creation when they are still in the process of pulling their business ideas and resources together (Kim et al. 2006). Previous studies have mainly focused on entrepreneurs who are in the advanced stages of new firm formation process using cross sectional or longitudinal study designs to examine how employees make successful transition into self-employment. However studying those who have made successful transition into entrepreneurship does not reveal the characteristics of those who were attracted into entrepreneurial process but failed. It is important to underline that in this study I examine both the influence of individual level resources and the local context on entrepreneurship according to the stage reached in the entrepreneurial process.

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 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, I utilise this framework to discuss the importance of three broad types of resources hypothesised to be influencing the different stages of the entrepreneurial process.

2.2.1 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). 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 1989b; Evans and Jovanovic 1989; Holtz-Eakin et al. 1994b for United States). Such studies often use the theory of financial constraints which explain how possession or access to substantial financial capital make it easier to acquire other resources, such as machinery and equipment, and make it easier for individuals to start a new business to exploit new 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 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 with 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. I posit that examining the entrepreneurial process enables to distinguish between the influences of both factors across the different stages. In particular, I argue that high household income individuals are less likely to exhibit entrepreneurial intentions. On the other hand, those with lowest income are more 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 to be a decisive factor when the individual moves from intentions to actual business creation. Drawing on the above discussion, I 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: 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) due to financial constraints.

2.2.2 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 formal education and work experience are associated with successful transitions into entrepreneurship (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). Thus, 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. 2001b) or compensate for lack of financial resources which is a constraint suffered by many entrepreneurs (Evans and Leighton 1989b) 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 (Davidsson and Honig 2003; Grilo and Thurik 2008; Kim et al. 2006).

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 1989b). 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). Therefore, I 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 engage in the more advanced stages of entrepreneurship

(nascent entrepreneurs and owners-managers of new firms) than those with higher levels of education.

Parallel to education, the impact of work experience and employment status may reverse while moving 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). These arguments suggest that early stage entrepreneurial activities would be expected to be higher for those who are 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 1989b). 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 the argument is parallel to the line of reasoning developed with respect to finance and education (*Hypotheses 1b and 2b*). Those with worse resource endowment (here: experience, proxied by current employment status), 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. 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 and new business owners 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). In this study, entrepreneurship-specific human capital assets are defined as knowledge and skills that facilitate starting a new firm (Arenius and Minniti 2005). The latter 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 that lower levels of entrepreneurship-specific skills hinders prospective entrepreneurs from starting a new firm (Davidsson 1991; Gnyawali and Fogel 1994). However, again, I extend this perspective arguing that the impact of specific skills will vary along the stages of entrepreneurship. I posit that knowledge and skills 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 stages that the impact of specific entrepreneurial skills will have stronger impact. Based on the above discussion, I 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 become nascent entrepreneurs and new business owners. Moreover, this effect will be stronger for advanced stages of the entrepreneurial process than for the earliest stages of entrepreneurial process.

2.2.3 The social networks

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 (also see, 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 2004b: 421). Audretch 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 suggests that these bridging ties are highly correlated to entrepreneurship relevant information and tangible capital (Carter et al. 2003b; Davidsson and Honig 2003; Hughes et al. 2007). Audretsch and Keilbach (2004b) 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.

I 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 with another person (see, Dubini and Aldrich 1991). In

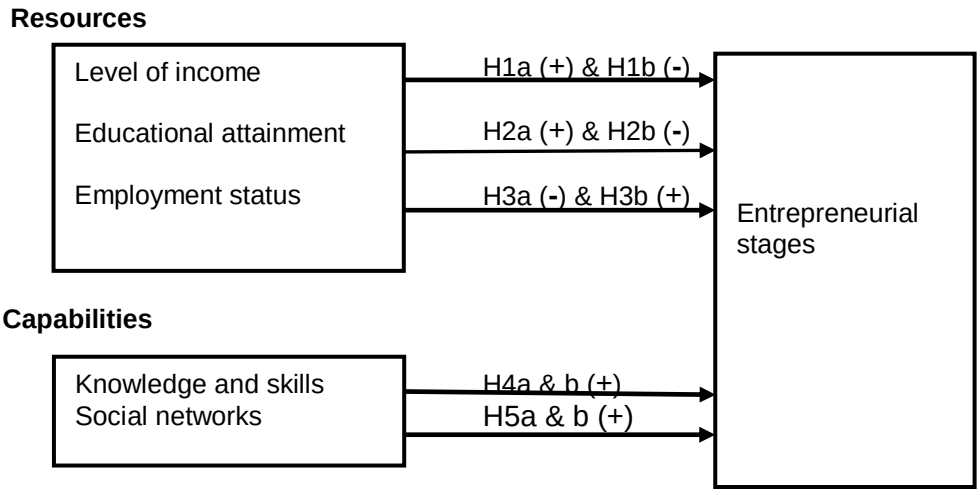
such a scenario, both parties will end up knowing what the other party knows resulting in the flow of information between the individual and the other person's contacts. Therefore, in the local environment dense in the entrepreneurship activity, there is more knowledge available to support entrepreneurship. Third, Audretsch and Keilbach (2004b) argue that regions with higher levels entrepreneurship capital facilitate start-ups because it serves as a conduit for knowledge spill-over. A novel element I stress here is linking this argument to stages of entrepreneurship. I 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 I 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.

As stated earlier, this study examines the impact of resources and capabilities on stages of entrepreneurial activity. In this chapter resources are broadly defined as assets that can be utilised in the new firm formation process (in this case: financial resources, education and being in employment). In turn, capabilities relate to specific entrepreneurial competences that are critical to combine and apply resources successfully (proxied by specific knowledge and skills, social networks). This framework (see Figure 2.1 below) led to formulate hypotheses related to the differentiated impact of both resources and competences on subsequent stages of the entrepreneurial process.

Figure 2.1: Proposed model and summary of hypotheses



2.3 METHODOLOGY

This chapter employs two large databases combined: 2006 to 2009 GEM East Midlands region data and the English Index of Multiple Deprivation (2007 release) data. The GEM database consists of random samples, stratified by region, of the working age (18 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, this sample is split into five groups: (i) individuals with no business ownership intention, (ii) those considering entrepreneurship, (iii) intending to start 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) and, (v) owners of newly established businesses (up to 42 months).

The variable related to the hypotheses include: household income categories (*Hypotheses* 1a and 1b), highest educational attainment (*Hypotheses* 2a and 2b), being in employment (*Hypothesis* 3a, and 3b), entrepreneurship specific knowledge and skills (*Hypotheses* 4a and 4b), and finally, the prevalence rate of owners-managers of established businesses in the neighbourhood (*Hypotheses* 5a, and 5b).

A number of studies have demonstrated that a region's socio-economic environment matters for entrepreneurship (Anderson and Miller 2003; Cooke et al. 2005; Kalantaridis and Bika 2006b). Lee et al (2011) showed that deprived areas with social networks restricted to bonding capital, that is strong ties, do not facilitate access to motivation and material resources. I 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), which are communities with an average population of 1,500 people (DCLG 2010). After cleaning the postcodes in the GEM database, I was able to classify each respondent in the East Midlands into his/her LSOA by inputting yearly datasets separately for all the postcodes from the GEM database into the Geo-Convert facility. Then, I ranked each respondent according to his/her local community's level of socio-economic development (IMD). I then split the sample into five equal groups according to their rank using the *quintile* facility in Stata. In addition I include fixed effects related to the higher level territorial units that are counties, and an indicator variable representing urban versus rural areas (at LSOA level).

Control variables: Although the interest is in developing the resource-based view model, there are other factors that may have the potential to influence entrepreneurial activity. Research has shown the importance of socio-demographic factors (Davidsson 2006; Langowitz and Minniti 2007; Levesque and Minniti 2006) and regional characteristic (Armington and Acs 2002; Grilo and Irigoyen 2006; Minniti 2005) in explaining entrepreneurial behaviour. Therefore, a number of controls at the individual and neighbourhood level, as standard in the empirical literature on aspects of entrepreneurship are included. In the models, age, gender, knowing other entrepreneurs and business angles are used as controls for the individual level characteristic, and dummies for county-level fixed effects, IMD and urban/rural as control for regional characteristics. Empirical evidence indicates that there is a significant relationship between age and entrepreneurial activity (Evans and Leighton 1989a; Levesque and Minniti 2006; Van Der Zwan et al. 2011). Others have indicated the women's participation rates in entrepreneurial activities are much lower than the participation rates of men (Arenius and Minniti 2005; Langowitz and Minniti 2007; Van Der Zwan et al. 2011). In addition, Blanchflower (2004) pointed out that men are more likely to start a business than women. A binary variable is included in the analysis to test the significance of gender effects. Evidence suggest that knowing other entrepreneurs and business angles have a positive effect on entrepreneurial

activity (Mickiewicz et al. forthcoming; Nyakudya et al. 2013). A number of researchers have found a negative relationship between entrepreneurial activity and location (urban/rural) (Van Der Zwan et al. 2011). Therefore, IMD, urban/rural and counties dummies are included in the analysis.

Figure 2.2 below show the description of variables used in this study. In addition, correlation coefficients for the variables used in the analysis are presented in Figure 2.3 below. Although some variables (e.g. knowing other entrepreneurs, knowledge and skills) show some correlation, problems for further analysis are not anticipated since the coefficient values are not excessively high.

Figure 2.2: Variable description

Variable	Description	Percentage
Dependent variable		
Entrepreneurial activity	passive considering intending start-up in 3yrs nascent (start-up) new business owners	86.43 5.19 3.43 2.29 2.66
Individual resources and capabilities		
Income (head of household)	up to £11500 £11501-£20000 £20001-£50000 over £50000 not stated	22.97 22.03 23.01 16.16 15.83
Education	No formal qualifications GCSE A level Vocational and other Batchelor Masters Doctorate	14.26 27.42 19.45 12.34 19.55 6.06 0.93
In employment	Yes No	74.3 25.7
Knowledge and skills (have knowledge, skill and experience required to start a business)	Yes No	31.9 68.1
Knows other entrepreneurs in the previous 2 years	Yes No	14.8 85.2
Business angel (in past 3 years)	Yes No	12.0 88.0
Owners of established business (over 42 months old)	Yes No	6.0 94.0
Age	18 to 24 25 to 34 35 to 44 45 to 55 55 to 64	6.2 15.37 25.70 26.11 26.62
Gender: Male	Yes No	40.6 59.4
Environmental variables		
Share of Owners-managers of established businesses in the neighbourhood	Share of business owners	*(Mean 0.06 SD 12.98)*
IMD	Categorised into 5 even categories based on quintile function	
Urban status	Urban Rural	67.3 32.7
County	Derby Derbyshire Leicester Leicestershire Lincolnshire Northamptonshire Nottingham Nottinghamshire Rutland	4.57 18.82 5.49 15.76 17.17 14.62 4.73 18.02 0.82

Figure 2.3: Spearman rho correlation coefficients for individual level variables and community characteristics

	0	1	2	3	4	5	6	7	8	9	10	11	12	13
0 Entrepreneurial stages	1													
1 Income	0.01	1												
2 Education	-0.06	-0.05	1											
3 Knowledge & skills	0.37	0.01	-0.04	1										
4 Businesses owners	-0.03	-0.03	0.01	0.31	1									
5 Share of business owners	0.00	-0.02	-0.00	0.18	0.54	1								
6 Age	-0.11	-0.09	0.23	-0.00	0.09	0.06	1							
7 In employment	0.08	0.18	-0.09	0.13	0.13	0.07	-0.13	1						
8 Gender: Male	0.13	0.08	0.04	0.19	0.12	0.05	0.02	0.10	1					
9 Knows other entrepreneurs	0.31	0.02	-0.08	0.34	0.12	0.07	-0.11	0.09	0.11	1				
10 Business angel	0.12	-0.01	-0.00	0.12	0.07	0.04	0.01	0.03	0.04	0.16	1			
11 County	-0.00	0.01	-0.00	0.00	0.00	0.01	0.01	-0.00	-0.03	-0.01	0.01	1		
12 IMD	-0.02	0.00	0.12	-0.09	-0.07	-0.12	-0.09	-0.10	-0.00	-0.04	-0.02	-0.01	1	
13 Urban areas	-0.03	0.04	0.03	-0.06	-0.06	-0.12	-0.07	-0.01	0.03	-0.01	-0.01	-0.06	0.28	1
Observations	8269													

2.4 ESTIMATION STRATEGY

A multinomial logit estimator (MNL) is employed to predict the likelihood that an individual is engaged in any entrepreneurial stage, given his/her resource endowments 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 of categorical outcomes by estimating a separate equation for each outcome compared with the reference one, which in this case is taken as lack of any entrepreneurial activity or intention (Long and Freese 2003). The maximum likelihood estimations are used to calculate the logit coefficients (Gelman and Hill 2006), which I 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. An 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. I expect that individuals will choose any stage of the entrepreneurial process which provides them with the highest utility defined as:

$$\Upsilon_{ji}^{*} = \mathrm{U}_{ji} - \mathrm{U}_{0i}$$

Υ_{ji}^{*} is unobservable but we observe $\Upsilon_{i} = j$ of individual i makes a choice j

If $\Upsilon_{ji}^{*} < 0$ for $j = 1, \ldots, J$, then an individual i will choose the benchmark alternative ($\Upsilon_i = 0$) otherwise individual i will choose an alternative that yields that highest value for Υ_{ji}^{*}.

Therefore, Υ_i = indicates different alternatives of the entrepreneurial stages.

U_{ji} = the utility of individual i when he/she chooses alternative j

Since the utility differences depend on explanatory variables, I use the following regression:

$$Y_{ji}^{\star} = \alpha_j + \beta_{j1}\,\text{Income}_{1i} + \beta_{j2}\,\text{Education}_{2i} + \beta_{j3}\,\text{Employment Status}_{3i} + \beta_{j4}\,\text{Knowledge \& skills}_{4i} + \beta_{j5}\,\text{Social Network}_{5i} + \beta_{jk}X_{ki} + \varepsilon_{ji}$$

Since I do not have a single regression, J denote the 4 different regressions (one for comparing each alternative $j = 1, \ldots, J$ with alternative 0. α_j is the intercept in the regression focusing on the difference in utility choosing j or choosing 0. β_{j1} represent the coefficient of the first explanatory variable. and X_{ki} denotes a set of control variables used in the regression. Assuming that all the explanatory variables are independent and identically distributed (i.i.d) (Koop 2008) and given that there are five outcomes, 1 being the base category, the probability equations would be:

$$\Pr(y = m \mid x) = \frac{\exp(x\beta_{m|b})}{\sum_{j=1}^{J}\exp(x\beta_{j|b})} \qquad m = 2, 3, 4. 5.$$

A caveat with this model is that the preference of choosing one entrepreneurial stage over another is independent of the existence of other alternatives, thus, the model assumes the Irrelevance of Independent Alternatives (IIA).

The modelling strategy is as follows. I estimated all the models with five options: (i) passive - no entrepreneurial activity, a baseline or reference category, (ii) considering entrepreneurship, (iii) intending to start-up a business, (iv) nascent entrepreneurs and (v) owners-managers of new established businesses (baby businesses). In the first model, I used all the explanatory variables and control variables listed in Figure 2.2 above. I verified that I 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 I also 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 I excluded the level of household income, personally knowing other entrepreneurs, entrepreneurial skills and being in employment due to concern about the simultaneity (endogeneity) problems with some of the variables. Accordingly, I now drop all these variables from the model. As before, I verified that the model holds based on the Small-Hsiao tests. Thus, as a result, the second model I report is based again on five outcomes.

I 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 due to small changes in the set of explanatory variables. Tolerance and variance inflation factor (VIF) are the two common measures of

multicollinearity. The results show that the minimum tolerance is 0.2323 and the highest VIF is 4.22, which indicates that the interrelationship among the explanatory variables is weak. Therefore, I 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 the hypotheses relate to individual level variables, *Hypothesis* 5a and 5b concern an environmental effect, of the entrepreneurship capital. In examining the influence of resources and capabilities on the different stages of entrepreneurial process, the robust option in Stata 10.1 was employed to calculate standards errors that are robust to heteroskedasticity. However, while calculating the standard errors and the related significance levels, I take into account the fact that the observations are interdependent within each local community (LSOA). Accordingly, I cluster the standard errors on the LSOA to make them robust. I 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 autocorrelation, if left unattended, is a violation of one of the classical assumptions of the regression models, and is adjusted in this study with the use of the cluster option.

2.5 ESTIMATION RESULTS

Lastly, I can conclude that the MNLM is sufficiently robust and a summary of the main results are reported in Table 2.1 and 2.2. Before presenting the results, some measures for explanatory power and diagnostics of the models are presented in Table 2.1 and 2.2 below. In summarising the results, I concentrate on the variables that are related to the hypotheses: income, education, employment status, knowledge and skills, and social network. The relative

risk ratios of the maximum likelihood estimations for the two models are presented in Tables 2.1 and 2.2 below. In addition, I also report results of additional tests comparing coefficients across different outcomes and some visual illustration of the results.

Based on Model 1, the results indicate that a higher level of household income, “over £11,500”, reduces the probability of considering entrepreneurship and of entrepreneurial intentions. This indicates that lower levels of household income, “Up to £11,500”, increases the propensity of an individual to consider entrepreneurship and form entrepreneurial intentions (low opportunity cost considerations), confirming *Hypothesis* 1a. Holding all other variables in the model constant, I find that higher levels of household income lower the probability of becoming a nascent entrepreneur and new business owner. Therefore, I cannot confirm *Hypothesis* 1b. When I performed additional tests for differences in coefficients across the outcomes, I found differences for most of the categories insignificant. That led me to conclude that the lowest income category is uniformly associated with all the different stages of the entrepreneurial process.

Table 2.1: Multinomial logit estimâtes, Model 1

	Considering	Intentions	Nascent	Baby businesses
Income: £11,501 to £20,000	0.774	0.679*	0.711	0.518*
	(0.129)	(0.134)	(0.166)	(0.151)
Income: £20,001 to £49,999	0.903	0.740	0.468**	0.806
	(0.153)	(0.146)	(0.115)	(0.211)
Income: Over £50,000	0.685*	0.673+	0.336***	1.090
	(0.128)	(0.147)	(0.0924)	(0.308)
Income: Not stated	0.666*	0.470**	0.596+	1.182
	(0.130)	(0.116)	(0.165)	(0.347)
Education: GCSE	1.409	1.315	0.560*	1.152
	(0.316)	(0.386)	(0.155)	(0.366)
Education: 'A' level	1.900**	2.431**	0.914	1.234
	(0.436)	(0.702)	(0.248)	(0.402)
Education: Vocational & others	1.282	1.733+	0.685	1.165
	(0.317)	(0.533)	(0.209)	(0.408)
Education: Bachelor	2.254***	2.330**	0.961	1.279
	(0.508)	(0.678)	(0.280)	(0.415)
Education: Masters & doctorate	1.758*	2.229*	1.356	1.760
	(0.480)	(0.754)	(0.433)	(0.641)
Knowledge & skills	5.566***	6.512***	16.44***	27.27***
	(0.639)	(0.992)	(3.799)	(7.043)
Owners of businesses	0.000***	0.508*	0.126***	0.0163***
	(0.000)	(0.137)	(0.0582)	(0.0127)
Share of business owners	2.736*	2.200+	2.219	2.415
	(1.305)	(1.030)	(1.542)	(1.776)
Age: 25 to 34	0.623*	0.612*	1.356	1.879
	(0.125)	(0.136)	(0.534)	(0.877)
Age: 35 to 44	0.446***	0.497***	1.099	2.171+
	(0.0850)	(0.105)	(0.406)	(0.980)
Age: 45 to 54	0.335***	0.351***	0.764	1.159
	(0.0662)	(0.0792)	(0.295)	(0.539)
Age: 55 to 64	0.201***	0.175***	0.502+	1.143
	(0.0447)	(0.0449)	(0.204)	(0.542)
In employment	0.746*	0.604**	1.279	4.599***
	(0.106)	(0.0998)	(0.308)	(1.577)
Gender: Male	1.926***	1.568***	1.319+	2.226***
	(0.211)	(0.202)	(0.209)	(0.343)
Knows other entrepreneurs in past 2 years	2.357***	4.033***	4.033***	2.912***
	(0.300)	(0.576)	(0.712)	(0.463)
Business angel in past 3 years	1.417	3.591***	1.632	3.220**
	(0.600)	(1.038)	(0.779)	(1.217)
Derbyshire	0.705	0.554	1.463	0.815
	(0.189)	(0.208)	(0.721)	(0.345)
Leicester	1.122	1.089	1.674	1.172
	(0.360)	(0.458)	(0.886)	(0.636)
Leicestershire	1.011	0.663	1.153	0.827
	(0.268)	(0.253)	(0.578)	(0.342)
Lincolnshire	0.947	0.800	1.555	0.810
	(0.255)	(0.296)	(0.777)	(0.351)
Northamptonshire	0.886	0.809	0.894	0.965
	(0.245)	(0.303)	(0.454)	(0.396)
Nottingham	1.354	2.179+	1.677	1.475
	(0.447)	(0.875)	(0.939)	(0.765)
Nottinghamshire	0.965	0.583	0.827	0.819
	(0.256)	(0.218)	(0.412)	(0.345)
Rutland	1.787	1.660	1.585	1.007
	(0.812)	(0.842)	(1.308)	(0.685)
IMD: Quintile 2	1.003	0.923	1.139	1.326
	(0.168)	(0.169)	(0.256)	(0.262)
IMD: Quintile 3	1.123	0.918	1.175	0.948
	(0.189)	(0.183)	(0.281)	(0.235)
IMD: Quintile 4	1.271	0.769	0.975	0.872
	(0.224)	(0.168)	(0.265)	(0.239)
IMD: Quintile 5	1.322	0.797	1.392	1.232
	(0.271)	(0.222)	(0.453)	(0.399)
LSOA classification: Urban areas	0.890	0.861	0.793	0.681*
	(0.115)	(0.124)	(0.143)	(0.111)
Observations	8269	8269	8269	8269
Log likelihood	-3837.5	-3837.5	-3837.5	-3837.5
LR chi^2	2172.4	2172.4	2172.4	2172.4
DF	132	132	132	132
Correctly predicted	0.858	0.858	0.858	0.858
Pseudo R^2	0.221	0.221	0.221	0.221

Note: + significant at 10% * 5%, ** 1%, *** .01%. Clustered standard errors in parentheses

In terms of human capital (based on Table2.2, Model 2), I expected that the coefficients of education variables will change once I move along the different stages of the entrepreneurial process, but I find that higher levels of education increases the probability of considering entrepreneurship and entrepreneurial intentions. This indicates that lower level of education is negatively associated with the early stages of the entrepreneurial activity. Therefore, I could not confirm *Hypothesis 2a.* However, in the advanced stages of entrepreneurial process, I find that individuals with higher levels of education are more likely to become new business owners than those with lower levels of education; this is consistent with *Hypothesis 2b.* However when I step back to nascent entrepreneurs, I find that higher levels of education does not provide any additional benefit and most of the education categories are insignificant. Although higher level of education has no significant influence on the probability of becoming a nascent entrepreneur the pattern of the effect higher levels of education on nascent entrepreneurs and owners of new businesses illustrated in Figure 2.5 below is consistent with the argument proposed in *Hypothesis 2b.* Based on the results of additional test, *Hypothesis 2b* cannot be rejected.

For *Hypothesis 3a,* it has been argued that individuals who are employed are less likely to become entrepreneurs because entrepreneurship might lead to reduced income compared to employment opportunities. The results are consistent with Hypothesis 3a indicating that being employed reduces the probability of considering entrepreneurship and entrepreneurial intentions. However, I found that being employed has a positive and insignificant influence on propensity to become a nascent entrepreneur. But I also found that being in employment increased the likelihood of becoming a new owner-manager of a new business. Based on additional tests and the fact that individual who are employed can voluntarily choose to become entrepreneurs and the unambiguous positive impact of being employed on new businesses, *Hypothesis 3b* is confirmed.

Table 2.2: Multinomial logit estimâtes, Model 2.

	Considering	Intentions	Nascent	Baby businesses
Education: GCSE	1.594*	1.539	0.716	1.543
	(0.345)	(0.438)	(0.193)	(0.470)
Education: 'A' level	2.267***	3.161***	1.221	1.880*
	(0.510)	(0.868)	(0.324)	(0.596)
Education: Vocational & others	1.699*	2.425**	1.066	1.805+
	(0.404)	(0.715)	(0.302)	(0.597)
Education: Bachelor	2.691***	3.054***	1.271	2.205*
	(0.582)	(0.830)	(0.346)	(0.686)
Education: Masters & doctorate	2.181**	3.071***	1.750+	3.361***
	(0.585)	(0.954)	(0.534)	(1.107)
Owners of businesses	0.000***	1.365	0.456+	0.0678***
	(0.000)	(0.342)	(0.199)	(0.0532)
Share of business owners	2.527*	1.887	1.735	2.040
	(1.189)	(0.850)	(1.109)	(1.424)
Age: 25 to 34	0.767	0.754	1.934+	3.102*
	(0.141)	(0.155)	(0.702)	(1.393)
Age: 35 to 44	0.548***	0.619*	1.533	3.626**
	(0.0963)	(0.120)	(0.519)	(1.586)
Age: 45 to 54	0.392***	0.407***	1.026	1.806
	(0.0720)	(0.0850)	(0.361)	(0.813)
Age: 55 to 64	0.246***	0.215***	0.639	1.367
	(0.0523)	(0.0525)	(0.242)	(0.632)
Gender: Male	2.407***	2.027***	1.900***	3.487***
	(0.245)	(0.250)	(0.288)	(0.500)
Business angel in past 3 years	3.390**	8.909***	5.725***	10.12***
	(1.390)	(2.411)	(2.540)	(3.550)
Derbyshire	0.724	0.587	1.585	0.839
	(0.197)	(0.208)	(0.729)	(0.334)
Leicester	1.157	1.149	1.727	0.969
	(0.365)	(0.443)	(0.838)	(0.507)
Leicestershire	1.024	0.687	1.191	0.843
	(0.277)	(0.245)	(0.560)	(0.336)
Lincolnshire	0.971	0.825	1.600	0.782
	(0.265)	(0.287)	(0.752)	(0.322)
Northamptonshire	0.942	0.893	0.965	1.092
	(0.261)	(0.312)	(0.463)	(0.429)
Nottingham	1.275	1.998+	1.496	1.216
	(0.407)	(0.741)	(0.779)	(0.599)
Nottinghamshire	1.024	0.629	0.893	0.872
	(0.274)	(0.219)	(0.422)	(0.347)
Rutland	1.746	1.715	1.512	1.072
	(0.801)	(0.838)	(1.186)	(0.768)
IMD: Quintile 2	0.993	0.965	1.197	1.315
	(0.161)	(0.168)	(0.260)	(0.245)
IMD: Quintile 3	1.103	0.941	1.211	0.887
	(0.177)	(0.179)	(0.285)	(0.202)
IMD: Quintile 4	1.177	0.740	0.984	0.713
	(0.196)	(0.150)	(0.247)	(0.179)
IMD: Quintile 5	1.251	0.802	1.343	0.923
	(0.240)	(0.209)	(0.413)	(0.287)
LSOA classification: Urban areas	0.870	0.858	0.808	0.649**
	(0.108)	(0.117)	(0.142)	(0.101)
Observations	8269	8269	8269	8269
Log likelihood	-4544.4	-4544.4	-4544.4	-4544.4
LR chi^2	758.6	758.6	758.6	758.6
DF	104	104	104	104
Correctly predicted	0.859	0.859	0.859	0.859
Pseudo R^2	0.0770	0.0770	0.0770	0.0770

Note: + significant at 10% * 5%, ** 1%, *** .01%. Clustered standard errors in parentheses

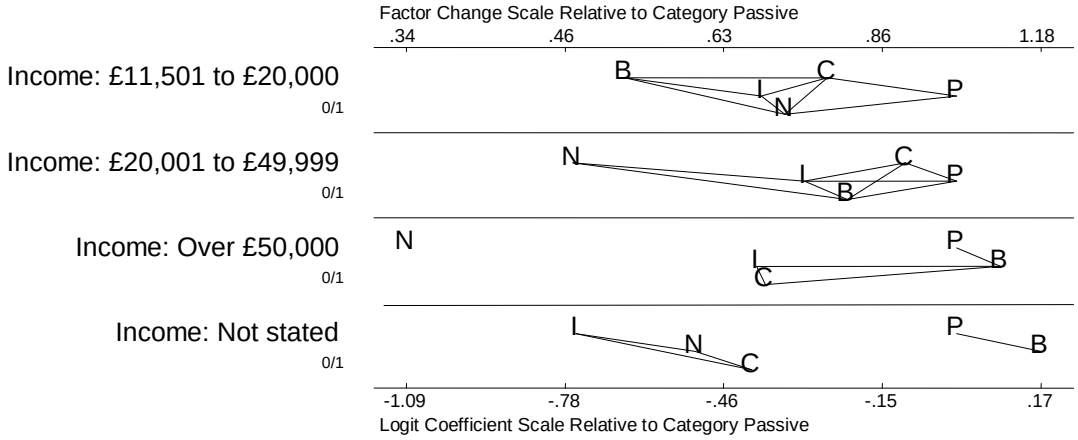
Regarding *Hypothesis 4a*, the results are consistent with the theoretical prediction and indicate that entrepreneurship specific knowledge and skills increases the probability of considering, entrepreneurial intentions, becoming a nascent entrepreneur and to become an owner of a new firm. Moreover, the impact of entrepreneurship specific knowledge and skills for nascent entrepreneurs is stronger than for the early stages of the entrepreneurial process and becomes even much stronger for the probability of becoming an owner of a new firm. The pattern is consistent with the theoretical prediction, supporting *Hypothesis 4b.*

The argument proposed in *Hypothesis 5a*, is that the presence of other entrepreneurs in the neighbourhood is likely to have positive impact 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 neighbourhood. 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 and entrepreneurial intention at .01% significance level. According to *Hypothesis 5b*, I expected that once I move along the stages of the entrepreneurial process, an individual's chances of engaging in entrepreneurial activity will diminish due the negative effect of competition. As expected, base on Table 2.1, the results indicate the impact of business density diminishes, becoming positive and insignificant. Therefore, I cannot formally confirm *Hypothesis 5b* because the coefficients of nascent entrepreneurs and owners of new firms are not significant.

The above discussion was focused on results which were statistically significant which either supported or not supported the theoretical predictions set out in the hypotheses. In this section I explore the magnitude of these effects. To do this, I plot discrete change coefficients which shows how a unit increase – a unit change for dummy variable and one standard deviation change for a continuous variable – affects the probability of choosing any of the entrepreneurial stages holding all other variables at their mean value (Gelman and Hill 2006; Long and Freese 2003). The five entrepreneurial stages are labelled as: passive - no business ownership intention (P), considering (C), intentions (I), nascent entrepreneurs (N) and new business owners – baby businesses (B). On the graphs presented 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.

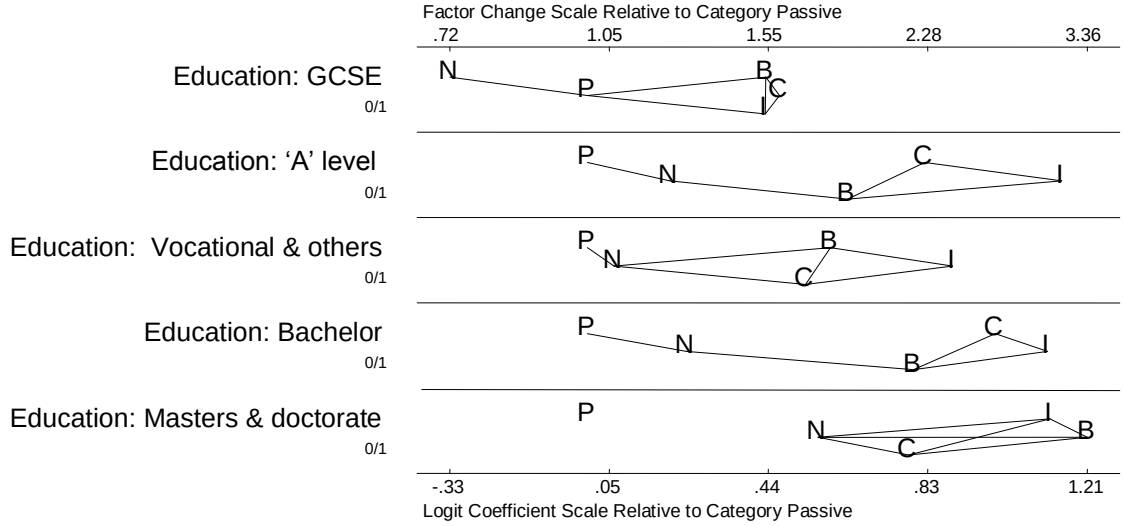
I start by presenting the effects of household income on different stages of the entrepreneurial process that are based on Model 1. Figure 2.4 indicate that moving up the income categories makes entrepreneurship less likely compared to the lowest income group (Up to £11.500). The pattern of the effect on entrepreneurial stages is clearly displayed at the highest income category (over £50k of the head of the household), with being involved in nascent entrepreneurship becoming least likely, followed by intentions and considering, being passive in terms of entrepreneurship and new business owner. Therefore, for income, the opportunity cost effect of entrepreneurial activity dominates over the resource endowment effect.

Figure 2.4: Factor changes in odds of entrepreneurial stages: Income categories



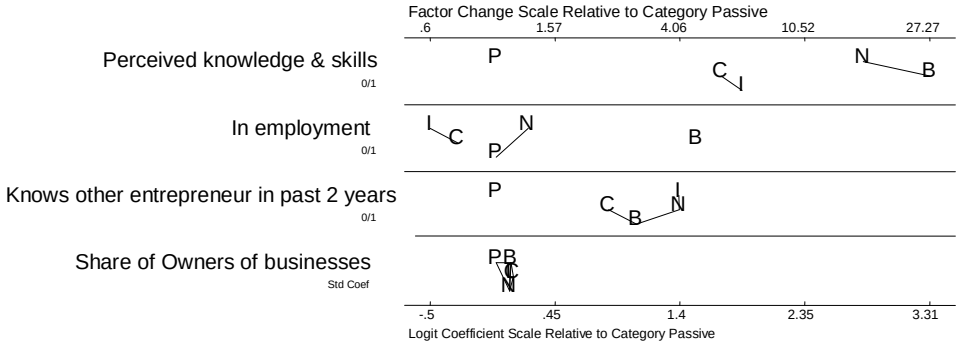
Figures 2.5 below is based on results reported in Model 2 presented in Table 2.2. The results indicate that for the early stages of the entrepreneurial process the effect of higher level of education is positive and significant at 10% level. This does not offer support to the argument proposed in *Hypothesis 2a.* However, results concerning advanced stages of the entrepreneurial process indicate that there are differences between nascent entrepreneurs and owners-managers of new firms (baby businesses). I found that the effect of the highest level of education (master's and doctorate) on owners of new businesses dominates, producing a pattern which offer support to *Hypothesis 1a*. However, once I step back to nascent entrepreneurs, this positive effect of education is reduced by the negative effect of the opportunity cost of education, which is consistent with the argument proposed in *Hypothesis 2b*. This indicates that although there are fewer individuals who volunteer to become nascent entrepreneurs, the number of people involved advanced stages of the entrepreneurial process is raised by those who are able to engage in the final stage of the entrepreneurial process, i.e. owners of new businesses as illustrated below in Figure 2.5.

Figure 2.5: Factor changes in odds of entrepreneurial stages: Education.



However a complex nonlinear story emerges for the next variable, employment status. The results presented in Figure 2.6 indicate that higher opportunity costs affects considering and entrepreneurial intentions negatively. This is consistent with the arguments proposed in *Hypothesis 3a*. However, this negative effect is counterbalanced by the resource effect, where in the advanced stages of the entrepreneurial process resource effect affect nascent entrepreneurs and owners of new businesses positively. The results also indicate that the magnitude of the effects of entrepreneurship specific knowledge and skills dominates the effects of other variables, and the ordering of the effects is consistent with *Hypothesis 4a* and *Hypothesis 4a*: these competences have positive effect on considering and entrepreneurial intentions, becoming a nascent entrepreneur and the effect even gets stronger on the probability of becoming an owner of a new business.

Figure 2.6: Factor changes in odds of entrepreneurial stages: Knowledge and skills, being in employment, social network



The Figure 2.6 also illustrates the effects of presence of other entrepreneurs in the neighbourhood and knowing other entrepreneurs individually. Knowing other entrepreneurs individually in the neighbourhood has a strong effect on the likelihood of engaging in all stages of the entrepreneurial process. However, presence of higher share of business owners in the neighbourhood has a significant effect on the likelihood of engaging in the early stages of the entrepreneurial process but the magnitude of the effect is very low.

Looking at the control variables (see Figure 2.7), the results indicate that the effect of age on stages of entrepreneurial process increases with age and produces a diagonal pattern of the effects. This indicates that the likelihood of engaging in entrepreneurial activity becomes lower as an individual gets older as compared to those who are in the base category which is the 18 to 24 years age category. The likelihood of considering and entrepreneurial intentions declined consistently with age. So does the likelihood of becoming a nascent entrepreneur and new business owner, but for the two age categories above the base category the odds are above one, indicating that the likelihood to engage in entrepreneurial activity start by increasing with age, then declines later on.

Figure 2.7: Factor changes in odds of entrepreneurial stages: Age categories, gender, business angel and urban

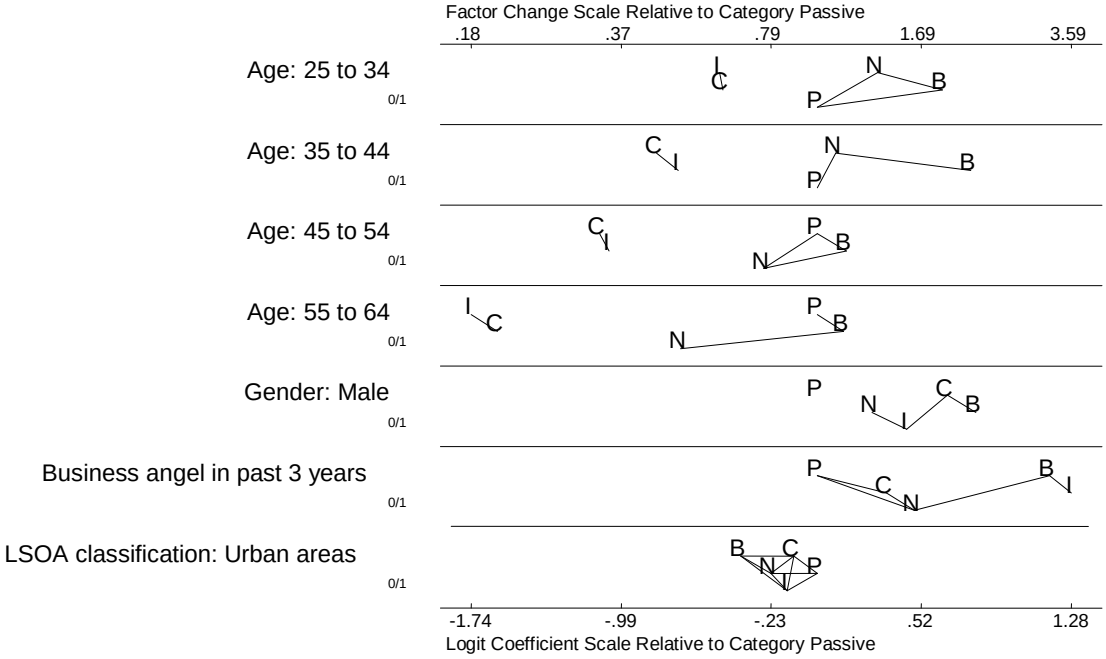


Figure 2.7 also illustrate that the effect of gender that is significant. The results indicate that men are more likely than women to engage in all stages of the entrepreneurial process and the effect is much stronger for owners of new businesses. Being a business angel has a very strong effect on the likelihood of entrepreneurial intentions and becoming an owner of a new business, reflecting both possession of/access to resources and capabilities. And finally, urban versus rural area has no significant effect on entrepreneurial activity.

2.6 DISCUSSION AND CONCLUSION

I am 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. I might have omitted some 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, I 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 that needs to be kept 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.

In this chapter I expected that individual with higher levels of household income will be less likely to engage in the early stages of the entrepreneurial process, i.e. considering and entrepreneurial intentions. Furthermore, I also argue that although individuals with lower levels of household income may engage in early stages of the entrepreneurial process, they are more likely to drop off in the more advanced stages of the entrepreneurial process due to resource limitations. I found that moving up the income categories makes entrepreneurship less likely compared to the lowest income group (Up to £11.500). This indicates that higher levels of household income decreased the probability of engaging in all the stages of the entrepreneurial process. It may be that individuals with lower levels of income find the opportunity cost to be very low and may lose very little or nothing in the event that the business fails. The finding may also reflect that financial capital required to start a business is relatively low, which may offer support to previous studies that have subsequently shown that the majority of people start new firms with lower levels of income (see Aldrich 1999; Fraser 2004; Moore 2004; Williams and Williams 2011). Previous studies claimed that higher levels financial capital increases the probability of becoming an entrepreneur (see Black et al. 1996; Blanchflower and Oswald 1998; Evans and Leighton 1989b; Evans and Jovanovic 1989; Holtz-Eakin et al. 1994b), and lower levels of financial capital hinders new firm formation (Disney and Gathergood 2009; Dunn and Holtz-Eakin 2000; Fairlie and Krashinsky 2012).

However, our results do not offer support to these previous studies. This may suggest that individuals with higher level of household income do not perceive the local environment to be good to engage in an entrepreneurial process; therefore, they do not find entrepreneurship appealing (see Kihlstrom and Laffont 1979; Martiarena 2011; Petrakis 2004). Taken together, I conclude that for income, the negative opportunity cost effect of entrepreneurial activity which discourages individuals to engage in entrepreneurial activity dominates over the resource endowment effect.

This study also investigated the role of human capital on the probability to engage in entrepreneurial activity. I distinguish between general human capital and human capital assets and hypothesised that individuals with lower level of education will have a higher propensity to consider and intentions to become entrepreneurs but will be less likely to engage in the more advanced stages of entrepreneurship. However, individuals with higher levels of specific entrepreneurial knowledge and skills are more likely to engage in all stages of the entrepreneurial process. In addition, Davidsson and Honig (2003) argued that human capital facilitated entry into entrepreneurial activity by providing individuals with the knowledge which enabled them to identify business opportunities and at the same time enhancing their self-confidence in exploiting the new business ideas. The results support Davidsson and Honig (2003) finding. I find a positive effect of higher level of education on the early stages of the entrepreneurial process and the effect of the highest level of education (master's and doctorate) on owners of new businesses dominates. However, once I step back to nascent entrepreneurs, this positive effect of education is reduced by the negative effect of the opportunity cost of education. I also found that the effects of entrepreneurship specific knowledge and skills dominates the effects of other variables and these competences have very strong positive effect on considering and entrepreneurial intentions, becoming a nascent entrepreneur and the effect even gets much stronger on the probability of becoming an owner

of a new business. This indicate that there are differences between early and advanced stages of the entrepreneurial process on the effects of general and specific human capital on entrepreneurial entry. General human capital has an ambiguous effect on entrepreneurial activity. However, the opposite is true for human capital assets which have very strong positive effect on all the stages of the entrepreneurial process. This has important managerial and policy implications.

The results also indicate that having a significant number of owners of businesses in the neighbourhood has a positive and significant effect on considering entrepreneurship and entrepreneurial intention but this effect is not carried over to advanced stages of the entrepreneurial activity due to competition. This point to the importance of specific entrepreneurial knowledge and skills derived from relationships which are believed to be an import determinant of entrepreneurship (see Aldrich and Cliff 2003; Gartner et al. 2004; Lee et al. 2011). In addition, evidence suggests that individuals with entrepreneurs in their neighbourhood are more likely to engage in entrepreneurial activity than those who do not (Arenius and Minniti 2005; Clausen 2011; Davidsson and Honig 2003; Kim et al. 2006). The results indicate that knowing other entrepreneurs individually in the neighbourhood has a strong effect on the likelihood of engaging on all stages of the entrepreneurial process. The finding offer support to previous studies that suggest that having individual who know other entrepreneurs increases the likelihood of engaging in entrepreneurial activity because potential entrepreneurs can obtain tangible and intangible resources and help to identify and exploit opportunities.

In summary, I argued that the influence of individual resources and capabilities changes as I move along the entrepreneurial stages. What I find is that higher opportunity cost discourages individuals with better resource endowments to engage in the early stages of the

entrepreneurial process. However, if individuals with better resource endowments enter, the negative effect is reversed and I identified that possession and access to quality resources and capabilities make it much easier to enter into the advanced stages of entrepreneurial process. This phenomenon is common among most factors considered in this chapter. This has important implication for both managerial and policy making.

Splitting the entrepreneurial process into five stages enhanced our understanding of the effects of resources and capability on the entrepreneurial process and identifying where the risk of discontinuity is higher among the residents of the East Midlands region. I found that motivation and formation of entrepreneurial intentions is not a major issue among individuals with lower resources. The major is how to overcome resource which limits their chances of succeeding in starting new businesses. The results also suggest that even individuals with better resource endowments are discouraged from engaging in entrepreneurial activity due to higher opportunity costs. This has some important managerial and policy making implications. Furthermore, the results clearly show that the effect of general human capital and human capital assets on the different stages of the entrepreneurial process differs. Here, I found that general human capital has an ambiguous effect but human capital assets have a discernible effect on the stages of the entrepreneurial process. Therefore practitioner and policy makers can draw on these finding when designing intervention programs aimed at promoting entrepreneurial activities.

Given that the objective of this study has been 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: the investigation enabled me to identify the role of the local environment and show how the environmental effect changes as I move up through the stages of entrepreneurial process.

Therefore, splitting the entrepreneurial process into five different stages enabled me to solve some of the ambiguities in the entrepreneurship literature highlighted above. The finding that the local context has an unambiguous effect on considering entrepreneurship and entrepreneurial intentions but this effect is not carried forward to the advance stages of the entrepreneurial process has important implications for scholars. This take us back to the core of the RBT that posit that success in entrepreneurial activity depended on the individual level specific capabilities that facilitate in the recognition of new business opportunities and the assembling of appropriate resources (Barney et al. 2001; Peteraf 2006; Wernerfelt 2007) hence I observe that in the advanced stages of the entrepreneurial process the effect of resources and capabilities dominates over the local environmental effects.

CHAPTER THREE

3 THE IMPACT OF NEIGHBOURHOOD CHARACTERISTICS ON ENTREPRENEURSHIP

3.1 INTRODUCTION

The existing literature highlights that there are significant regional variations in start up activities which often exceed national differences (among others, Acs and Mueller 2008; Armington and Acs 2002; Bosma and Schutjens 2009b; Fritsch and Falck 2007; Levie and Hart 2010; Tamásy 2006) and these differences persist over a long time (Andersson and Koster 2011; Fritsch and Wyrwich 2013; Mueller et al. 2008; van Stel and Suddle 2008). These authors general agree that if a region has a relatively high level of entrepreneurship today that particular region will continue to experience a similar level of entrepreneurship in future. This argument makes sense due to the fact that the natives dominate in entrepreneurial process. However, their effort may be augmented by migrants who could play a crucial role in the creation of new firms. Evidence indicates that migrants are capable of becoming entrepreneurs and, above all, proportionately create more new firms than the natives (among others, Antecol and Schuetze 2005; Clark and Drinkwater 2009; Constant and Zimmermann 2006; Kalantaridis and Bika 2006a; Levie 2007; Levie and Hart 2013). Others claim that migrants are a self-selected group of rational individuals who are willing to undertake risks; they have a strong incentive to invest in human so that they can maximize their lifetime earnings and better their lives; therefore, they are more entrepreneurial oriented than others (Constant and Zimmermann 2006; Hammarstedt 2006). This may be associated with the highly problematic portrayal of some migrants, as a group, in particular Asians, whose success in entrepreneurial activity is emphasised, which provokes a debate within the entrepreneurship field (see, Jones et al. 2012; Ram et al. 2013: for the discussion).

Evidence from the UK Global Entrepreneurship Monitor (GEM) indicated that from 2007 to 2009 the percentage of the adult population between the working age group of 18 to 64 years, who were engaged in total early stage entrepreneurial activity (TEA) in the East Midlands region, remained constant at about 5%. Interestingly, Rienzo and Vargas-Silva (2012) had

provided evidence which indicated that East Midlands experienced a 93% increase in the number of foreign born from 1995 to 2010 and this made the region the third largest destination of migrants among all the English regions during this period. They went on further and demonstrated that although East Midlands almost doubled its foreign born population, this still represented a very small proportion of the share of population in the region; between 1995 and 2000 the share of foreign born remained constant at 5%, rising slightly to 7% in 2005 and in a two year period from 2010 to 2011, it also remained constant at almost 10%. What makes this whole issue more interesting is the fact that the TEA also remained constant during the period when the share of the foreign born in the East Midland region rose by about 3% which makes the story worth investigating.

It has been recognised that explanations of variations in entrepreneurship rates can be found at a sub-national level, were the potential entrepreneur and owner of a business resides, rather than at national level (Bosma and Schutjens 2009a; Reynolds et al. 2005; Sternberg 2010). This may be relevant since an individual's entrepreneurial behaviour is embedded in his/her social and spatial sphere, therefore, entrepreneurship should be considered as a regional phenomenon (Feldman 2001). This argument is supported by empirical evidence which indicates that regional determinants such as urbanisation and agglomeration effects, regional income level and population growth explain the regional entrepreneurship rates (Acs and Armington 2004; Bosma and Schutjens 2009a; Fritsch and Falck 2007; Verheul and Van Mil 2011). Others have offered empirical support to the recent view that the regional proportion of the creative class in a region positively influence entrepreneurial activity (Boschma and Fritsch 2009; Lee et al. 2004). Given that migrants could be considered as members of the creative class (see, Constant and Zimmermann 2006; Hammarstedt 2006: arguments about migrants being a self selected group), the question is: how the increase in

the population share of the foreign born could be reconciled with stable TEA for East Midlands in recent period?

While acknowledging the contributions made by previous studies in enhancing our knowledge about the regional determinants of entrepreneurial activity, these studies did not engage with the actual mechanisms through which regional characteristics may affect potential entrepreneurs because they often focus on correlations between start ups and regional characteristics. This is problematic because even regional characteristics which are considered to be important may not have a direct impact but may operate as indirect factors shaping an individual's attitude in favour or against choosing an entrepreneurial career (Sternberg 2010). Moreover, determinants of start ups have been examined at a country level (e.g. Autio and Acs 2010; Estrin et al. 2013a; Levie and Autio 2011; Van Der Zwan et al. 2013; Wong et al. 2005). Therefore, our understanding of regional entrepreneurial activity remains limited (Jayawarna et al. 2011; Tamásy 2006; Wagner and Sternberg 2004). In order to enhance our understanding of the potential mechanisms through which regional characteristics affect entrepreneurial behaviour, there is need to combine aggregated data at the regional level with individual level data. A few studies have employed this approach and their results illustrate the relevance of regional characteristics in explaining an individual's entrepreneurial behaviour (Stuetzer et al. 2013; Tamásy 2006; Wagner and Sternberg 2004). Where I extend this line of research, however, is by looking at the lower neighbourhood level, which more accurately defines the relevant economic and social environment of the potential entrepreneur. To the best of my knowledge this approach is novel. Following this line of research may help in enhancing our understanding of how individual and neighbourhood level characteristics combine to affect entrepreneurial entry. In addition, given that there have been numerous attempts by government to promote the creation of businesses taking spatial heterogeneity into account may also provide knowledge for generating effective policies.

Based on the studies that indicate that migrants are more entrepreneurial than natives and regional characteristic influences the decision to create a business, the objective of this study is to examine how individual and neighbourhood level factors influence natives and migrants' decision to engage in start up activity. In that, I also distinguish between migrants and natives in East Midlands region. The focus is on three environmental characteristics at the neighbourhood level: knowledge creation base, local economic environment and entrepreneurial culture. Consistent with this, this study is based on insights from various disciplines in order first to theorise how the aforementioned regional characteristics affect an individual's decision to engage in start up activities, and next to derive hypotheses and test them empirically.

However, this study does not make a distinction between non-ambitious and ambitions entrepreneurs which are based on their growth aspirations as in recent stream of studies (see, Bosma and Schutjens 2009a; Estrin and Mickiewicz 2011; Levie and Autio 2011; Wong et al. 2005). Start up refers to individuals who at the entry stage of firm creation process which they owned or partly owned which has been paying wages or profit to its founders up to a period not exceeding forty two months (as for example: Estrin and Mickiewicz, 2011). To examine the determinants of the probability to engage in entrepreneurial activity, a maximum likelihood probit is employed as an estimator on the pooled GEM data with 8,347 respondents who reside in 2,732 Lower Super Output Areas (LSOA) in the East Midlands region.

The study makes three contributions: First, it combines ideas from different fields – entrepreneurship, migration, psychology and regional economics – to explain entry. Second, combining aggregated data at a neighbourhood level with individual level enables us to disentangle the effects of regional knowledge creation base, economic condition and specific

entrepreneurial culture. Third, I consider the importance of the interactive effects related to migrant status.

The rest of the chapter is structured as follows. The next section discusses theories drawn from various disciplines and how these theoretical frameworks may help explaining why migrants have a higher probability of becoming entrepreneurs than the natives. Drawing on different theories enables us to derive the hypotheses for this study. This is followed by an outline of the methodology and a discussion of the data drawn from different sources. Next a summary of the results of the probit regressions is presented as formal tests of the hypotheses. The last section presents the discussion and draw managerial and policy implications.

3.2 THEORETICAL FRAMEWORK AND HYPOTHESES

An individual's decision to engage in entrepreneurship is often modelled as an occupational choice where an individual will choose to become an entrepreneur if the expected total utility from entrepreneurship is higher than the expected total utility from employment (Blanchflower and Oswald 1998; Douglas and Shepherd 2002). However, regional characteristics can have a direct effect on an individual's choice. The literature indicates that the effect of regional characteristics on an individual's decision to engage in entrepreneurial activity can be classified under three characteristics of the local environment of the prospective entrepreneur, that is, the knowledge creation base, local economic environment and entrepreneurial culture (Bosma and Schutjens 2009a; Sternberg 2010).

In his seminal work, Richard Florida posits that creativity is the main driver of local and regional development (Florida 2002, 2004, 2012). Three different types of interrelated

creativity are distinguished: “technology, talent and tolerance (Florida 2003: 40; see also Florida 2004). The theory assumes that these three factors are important in facilitating regional growth in a knowledge based economy. According to Florida (2002) each of these factors is important but individually has limited influence to attract creative individuals who in turn generate innovations and economic growth. Therefore, to succeed a place must have all the three factors. It is argued that the creative people’s decision to live in particular city or region is based not only on job opportunities but on other factors such as tolerance and openness towards people with different ethnical background, different sexual orientation; new ideas and diverse cultures are equally important as the regional labour market opportunities. Members of the creative class often prefer to locate in areas characterised by diverse small scale cultural activities, vibrant night life rather than the traditional cultural activities (Florida 2004).

Florida (2004) argued that these factors are important because they facilitate migrants’ integration in the cosmopolitan environment without fear or abandonment of their identity (also see Desrochers 2001). In fact he clearly pointed out that tolerance and openness can lead to cultural diversity and variety. Immigrants (Melting Pot Index) are not only attracted by, but they also contribute to the reproduction of diversity, which is a one of the defining feature of a dynamic and creative region. Higher diversity of the regional population can lead to higher variety in the demand for product and services which may stimulate the creation of new firms (Boschma et al. 2009). However the main reason why variety and creativity play a major role in innovation and entrepreneurship is that it stimulates “frequent interaction between people with different backgrounds” and the possibility of creating opportunity related knowledge (Desrochers 2001: 386-87).

Another argument put forward by Florida (2004) is that members of the creative class play a major role in knowledge creation and transfer process, as they seek for places that offer all kinds of diversity. Accordingly, Florida (2004) posits that it is the climate of diversity that enables migrants to gain new experiences which may act as a stimuli and inspiration for the creative process which in turn induces new economic activity. He goes on further to identify a number of indicators for openness, tolerance and cultural variety such as share of foreign born people, share of people in art and cultural occupations or share of homosexual people and in Florida's terminology they can be represented by the Melting Pot Index, Bohemian Index and Gay Index respectively. In Europe these indicators show that there are relatively high share of creative people in, for example, London region for England, Munich region for Germany and Stockholm region of Sweden (Boschma and Fritsch 2009). The essence of Florida's creativity based theory is that locations with the climate of diversity are able to retain and attract more innovative people, who, in turn, increase the level of economic activity resulting in high economic growth within the region. What is interesting in Florida' proposition is that creative people are not attracted to locations with high regional growth - in particular locations with high employment opportunities - instead, regional growth and high rate of new firm formation and innovation should be anticipated because of the presence of creative people. There is a small but booming literature on the creative class, which indicates that cities or regions may become centres of diversity, creativity and creation of knowledge (e.g. Boschma and Fritsch 2009; Fritsch and Stuetzer 2009; Koster 2007; Lee et al. 2004).

In the following section it is argued that some of the characteristics of the region highlighted above may have a greater effect on the entry decision of entrepreneurs because they affect the perceived gains from growth rather than those just related to entry. The focus is on the development of hypotheses on whether and to what extent do the combined aggregated regional and individual level characteristics affect a migrants' decision to engage in start-up

activity. The hypotheses on the effects of individual and neighbourhood characteristics on migrants entrepreneurial entry are presented first and then turn on to the research questions on whether and how interaction between being a migrant and the selected regional characteristics affect an individual's probability to engage in entrepreneurial activity, paying particular attention on the differences between migrants and natives entrepreneurial activity within their local communities.

3.2.1 Migrants and the knowledge creation base

One of the key regional determinants of entrepreneurial entry is creation of knowledge associated with identification of entrepreneurial opportunities. Knowledge can be created in various regionally embedded organisations - such as universities, trade associations, local innovative firms and others that offer technical, financial and networking services. However, the quantity and quality of the entrepreneurship relevant knowledge depends on the regional composition of the adult population, i.e. being creative or not, in a given space and time: i.e. creativity facilitates combining prior knowledge with current knowledge to create new insights. In other words, the process is facilitated by spatial proximity of knowledge owners and potential users, and at the same time, geographical proximity of relevant regional organisations plays a crucial role. Here, the creation of knowledge is attributed to all members of the creative class within the region (Florida 2002, 2004). The presence of the creative class in the region enhances the likelihood of individuals to introduce innovations leading to formation of new businesses. This argument is based on the fact that since the members of creative class are engaged in creative and innovative jobs, they created knowledge that is either directly exploited or result in spills-over that can be commercially exploited by others. Thus, the creative people are considered to be the main driving force behind regional development (also see Schumpeter 1934). Knowledge is considered as a resource that is

accumulated and managed and becomes the most important resource for start up activities. This argument has been supported by Clark and Drinkwater (2009) who posit that prior experience shapes potential or actual changes in personal and firm level action to the extent that the owner-manager of the firm seem to rely more heavily on mental representations of historical environment than on the current environment with yet uncertain characteristics. They also suggested that previous knowledge, mental biases and heuristics may act as limiting factors in the development new knowledge, decision and strategies, directly associated with the entrepreneurial entry.

At this point it is possible to envision how immigrants are likely to engage in start-up activities. They contribute their specific knowledge, yet need to assess its suitability for operating in a different host country's context. In the first strand of research studies, there appears to be an agreement that migrants have a relatively higher rate of new firm formation than natives in their host countries. Extant evidence confirms that migrants make a disproportionate quantitative contribution to new firm formation (among others, Antecol and Schuetze 2005; Borjas 1986; Clark and Drinkwater 2009; Constant and Zimmermann 2006; Kalantaridis and Bika 2006a; Levie 2007; Levie and Hart 2013). In particular Levie (2007) showed that in the UK, migrants, both inter-regional and foreign migrants, have a higher propensity to start a new firm than the natives and similar results were found by Kalantaridis and Bika (2006) for rural areas in England.

The sociology and economic literature has also provided some explanations of the observed variations of entrepreneurial activity between natives and migrants and for the different types of migrant groups (e.g. Fairlie 2008; Levie 2007; Levie and Hart 2013; Waldinger et al. 2006). This school of thought posits that migrants are a self-selected group of rational individuals who are willing to undertake risks; they have a strong incentive to invest in human capital so

that they can maximize their lifetime earnings and better their lives, therefore, they are more entrepreneurial oriented than others (Constant and Zimmermann 2006; Hammarstedt 2006). This is consistent with the creativity based theory argument which maintains that since migrants are dynamic risk takers they are more likely to become entrepreneurs because they posses unique knowledge and skills acquired from both countries, i.e. the host country and the country of origin (Florida 2004; Lee et al. 2004). A number of authors suggest that knowledge and skills acquired in the country of origin is important for immigrants' entrepreneurial activity (Constant and Zimmermann 2006). They identified that ethnic language skills played an important role when making contacts with co-ethnic customers, suppliers, employees or negotiating for business investments, trade or joint ventures. Use of similar language facilitates in strengthening ties between migrant entrepreneurs and their community including access to ethnic resources. Moreover, awareness of ethnic preferences helps in identifying business opportunities which may result in new firm formation (Waldinger et al. 2006). Furthermore, Waldinger et al (1990) argued that migrants might have access to market opportunities that are not readily available to non-migrant entrepreneurs. This may include the formation of enclaves and their businesses may service the ethnic specific needs of a particular migrant group or opening braches in their country of origin. Evidence suggest that migrant owned businesses are twice more likely to have a strategic relationship with a foreign business (Hart et al. 2009; Zelekha 2013). This is supported by Danzer and Ulku (2011) who demonstrate that an migrant's family and ethnic networks increased the income of un-integrated migrants, particularly those from poor and uneducated households. International networks enable migrants to generate some competitive advantages over the native competitors who, in most cases, lack the cultural knowledge, contacts and business networks which are important in building international business relationships (Kloosterman et al. 1999; Kloosterman 2010). Other researchers also find that internationalisation is positively linked to growth preferences and cost efficiency or exportation which may offer entrepreneurs means to

achieve their desired outcome (Brush et al. 2008; Verheul and Van Mil 2011; Verheul et al. 2012).

These arguments about advantages availed to migrant entrepreneurs are associated with their ability to leverage their knowledge of international networks, leading to internationalisation strategies implemented by migrants (Miera 2008). These strategies relate to opening branches in their country of origin, employing migrant workers, targeting foreign customers in the migrant communities and higher level of mobility (Saxenian 2002). Internationalisation strategies employed by firms created by recent migrants facilitates the acquisition and development of new knowledge which leads to desired entrepreneurial outcomes. In the entrepreneurial context the argument is linked to the importance of relationship , entrepreneurial networks and management routines associated with knowledge development (Cope 2005). This suggests that international entrepreneurial activities may lead to further broadening of migrants' knowledge base. This lead to the suggestion that knowledge and skills acquired from the country of origins plays a major role in migrants entrepreneurial activity which is consistent with the creative-based theory (Florida 2004). In addition, this is also consistent with Williams argument which suggests that it is unlikely that there may be major differences between immigrants and the local inhabitants with respect to embodied and embrained knowledge although some educational and industrial structures in some developing countries may require individuals from these countries to update their knowledge (Williams 2007). Therefore migrants and the local inhabitants may differ on encultured and embedded knowledge only. However, others suggest that knowledge and skills acquired in the country of origin hinders employment opportunities and impel migrants to engage in entrepreneurial activity (Borjas 2001; Evans 1989; Hart 2011; Le 2000). These arguments are based on the lower quality of human capital and problems associated with transferability which are assumed to be important for entrepreneurial activity than for paid

employment. Moreover, most migrants are employed in jobs that require lower levels of skills; therefore, the issue of quality or transferability is not that important. Therefore, knowledge and skills acquired from the country of origin should not restrict salaried employment opportunities as such. In fact, the most important factor is that most of the business related information such as laws/regulations, products or market size is country specific and cannot be easily transferred across countries.

Thus, it seems reasonable to assume that migrants have relative advantage regarding access to resources that facilitate internationalisation such as international entrepreneurial networks, contacts and mobility (see Cope 2005). That suggests that immigrants, more than inter-regional migrants, are key actors in knowledge creation process and the generation of new business ideas. At the same time, the new knowledge of immigrants may not always be fully commercialised but may spill over to other people, echoing the arguments of Florida (2004) related to creative class. It is this new knowledge that is created but not commercialised by creators that forms and shapes new entrepreneurial opportunities. This is at the core of The Theory of Knowledge Spill-over of Entrepreneurship proposed by Audretsch and Keilbach (2007). Drawing on from this school of thought, a higher share of immigrants in the region will be expected to create significant opportunity related knowledge that increases the likelihood of potential entrepreneurs to identifying business opportunities within the region.

Thus, immigrants make a significant contribution to the knowledge spill-over process. However, if knowledge necessary for innovation and entrepreneurship is not codified but tacit, then the flow of knowledge may only be facilitated by frequent interaction of people. Therefore, spatial proximity of knowledge owners and potential users is the key factor in the transmission of tacit knowledge (Polanyi 1966 also see; Styhre 2004; Yang 2003). As such, geographical proximity, including that of various regional organisations plays an important role

in facilitating the flow of knowledge within the region (Sternberg 2009). In particular, some forms of tacit knowledge cannot be fully exchanged through the use of electronic media (Blackler 2002). Therefore, transmission of encultured and embedded knowledge can only be effective through face to face contact because its components are grounded in shared understanding and socially situated. We already know that immigrants differ from non-immigrants in terms of their personality traits (Constant and Zimmermann 2006; Miera 2008; Waldinger et al. 2006). From these studies it is possible to derive the proposition that migrants are more prone to become entrepreneurs. However, the diverging outcomes of entrepreneurial activities between the different groups of migrants need to be taken into consideration. Considering the claim that immigrants are a self selecting group who are prepared to undertake risks (Constant and Zimmermann 2006) one can expect that neighbourhoods with a higher share of immigrants to be more entrepreneurial. This indicates the presence of a higher share of extraverts in the community. Accordingly, this suggests that immigrants have a higher extraversion score, which is an indicator of the level of an individual's engagement with the outside world which is in congruent with Fritsch and Rusakova (2010) definition of extraversion. Immigrants as a group, i.e. extraverts, gain greater satisfaction from social interaction and are prone to form various forms of local and international relationships. Indeed, Asendorpf and Wilpers (1998) and Selfhout et al (2010) provided empirical evidence, which support the view that extraversion predicted the formation of a significant number of friendships during the late adolescence stage. In related work, Vinson et al (2007) found that employees with higher scores of extraversion traits tend to have larger work-related networks and employment alternatives than introverts. This is another mechanism that supports our view that a higher share of the immigrants in the neighbourhood will result in the formation of larger intra-regional and international social networks which in turn facilitates the transmission of entrepreneurial knowledge and new business ideas into entrepreneurial activity.

More generally, evidence from empirical studies confirms that the natives and regional migrants' decision about whether to migrate or to remain in the current location can be explained by migration costs (Borjas 1999, 2001; De Lima et al. 2005; Findlay et al. 2003; Tervo 2000). The intuition underlying this proposition is that even when individuals can find employment and earn more income than their present level of income, in other regions, individuals born and living a particular region find it very difficult to migrate because the migration costs are considered to be relatively high. If higher migration costs act as a barrier to the choice of location, this suggests that higher opportunity cost prevent both natives and regional migrants from fully utilising their knowledge and skills in entrepreneurship. This is particularly important as it indicates a bifurcation of entrepreneurs that is likely to emerge in the neighbourhoods. Therefore, this study argues that there should be no significant differences between natives and regional migrants in their engagement in start-up activities since they are faced with similar hurdles which are more likely to limit them from fully participating in the knowledge creation process. Drawing on from the above discussion, the following hypothesis is proposed:

Hypothesis 1: A higher share of migrants in the neighbourhood – indicating a wider knowledge base within the community – will have a positive effect on an individual's likelihood to engage in start-up activities. However, this positive effect will be much stronger for immigrants than for regional migrants due to higher opportunity costs.

The way how the local environment shape an individual characteristics or moderate their effect on an individual's decision to be involved in the new firm formation process can be depicted by the relationship between entrepreneurship and time (Bauder 2005; Clark and Drinkwater 2009; Hammarstedt 2004; Schuetze 2005). The entrepreneurship literature

generally shows that there is a gradual decline in the probability of people to engage in entrepreneurial activity as the years go by. However, the relationship between entrepreneurship and the number of years spent in the new homeland has two sides. Although recent migrants are more likely to start a business, the human and non-human capital endowments that are necessary for the creation of a new venture are in most cases not available to newly arriving migrants. Indeed, it takes time and skills to acquire and configure the appropriate resources which enable an individual to set up a business. Therefore, it can be argued migrants who have lived in the region for a longer period are more likely to become entrepreneurs than the others. This group of people are more likely to have had time to accumulate the necessary business knowledge and skills, built networks relationships that facilitate entrepreneurial entry, have already identified viable entrepreneurial opportunities and gathered other tangible and intangible resources that are important for success in venture creation (Arenius and Minniti 2005; Bates 1997; Parker 2009). These arguments are consistent with recent evidence which indicates that the combinative role of human capital, experience and local context varies along the different stages of the entrepreneurial process. That is, in the early stages of entrepreneurial activity the (negative) opportunity cost effect of resources dominates; it tends to reverse in advanced stages of entrepreneurial activity, where the (positive) resource endowment effect becomes stronger (see Nyakudya et al. 2013), i.e. more activity early on after arrival, less later on when the number of years living in the region increases. While a number of studies have indicated that there is a positive association between the number of years migrants have lived in the host country and the likelihood of starting a firm (Clark and Drinkwater 2009; Hammarstedt 2001, 2004; Schuetze 2005) others studies confirm a negative relationship (Clark and Drinkwater 2009; Hjerm 2004) and others found a non significant effect (Bauder 2005). Therefore, the number of years spent in the host country may be an important indicator of migrant's entrepreneurial behaviour.

However, there are other factors associated with time spent in the host country which can act as barriers to entrepreneurship. For example, regional migrants and some older migrants often prefer to engage in economic activities that can provide them with income benefit within a short period of time such as paid employment (see De Lima et al. 2005; Findlay et al. 2003: for an overview regional migrants) instead of choosing to engaging in entrepreneurial activity (Levesque and Minniti 2006). Recent empirical study in transition economies found comparatively lower levels of entrepreneurial activity among older people (Estrin and Mickiewicz 2013). However, this study argues that recent regional migrants entrepreneurial activities are more likely to increase and converge with those of the natives during the first few years of settling in the region due to lack of employment opportunities or need for success which will push them to engage in entrepreneurial activity. A decline in regional migrant's entrepreneurial activity is expected as the years spent living in the region increases when a significant number of regional migrants find suitable employment. Regarding immigrants, I argue that since recent immigrants often tend to live in regions which offer them higher income generating opportunities (Constant and Zimmermann 2006), they are in a better position to quickly adjust to local environment for starting new businesses. However, immigrants and those regional migrants who had been living in the region for a longer period of time are expected to have access to broader social and economic networks, accumulated sufficient resources and familiar with socio-economic systems including market laws/regulations which facilitate entrepreneurial entry. Therefore, for these groups of people, i.e. established immigrants and regional migrants, years spent living in the region is expected to have the same effect as natives and once they are involved in the start-up process they are more likely not just to create new firms but to be successful entrepreneurs in terms of business growth (Audretsch and Peña-Legazkue 2012). Accordingly the following hypothesis is proposed:

Hypothesis 2: There is a time effect: i.e. the probability of recent regional migrants to engage in start-up activity will be high during the early years of settling in the region and decreases as the number of years living in the region increases. However, because immigrants are positively selected, therefore, for recent and established immigrants, the number of years living in the region will have a minimal effect on their probability to engage in entrepreneurial activity.

3.2.2 The local economic environment

With respect to another regional characteristic, the economic context may enhance or limit entrepreneurial activity. At regional level, factors such as the availability of business premises, the labour market characteristics, regional market characteristics and several others are used to explain the rate of entrepreneurial activity (Bosma and Schutjens 2009a, 2011; Fritsch and Falck 2007). Regarding the firm size structure, the debate is on whether a relatively high share of similar type of firms (localisation effect) or a concentration of different types of firms (urbanisation effect) simulates the creation of new firms (Fotopoulos and Louri 2000; Rocha and Sternberg 2005). However, high share of small firms in a region may be viewed as an indication of an entrepreneurial friendly climate within the region. Alternatively it can be seen as a high level of broad and balanced skills among the labour force which plays an important role in new firm formation (Stuetzer et al. 2012). High regional unemployment rate may affect the quality of, and start-up rates since for the unemployed the opportunity cost of engaging in entrepreneurial activity is relatively lower (Cassar 2006, 2007). At a regional level, the large market potential relating to customers, suppliers and high knowledge intensity are important determinants of entrepreneurial entry (Bosma and Schutjens 2011). The regional market condition may influence entrepreneurial activity. The carrying capacity of the market

determines whether there is room left for new firm entry. Here the demand and supply forces are crucial in determining market entry and exit. On the one hand factors such as market potential and a relatively high regional GDP can pull people to engage in entrepreneurial activity since they act as indicators of a high demand for products and services. On the other hand, a regional high share of small firms may increase the probability of an individual to identify opportunities and engage in entrepreneurial activity in various ways (see Bosma et al. 2010; Tödtling and Wanzenböck 2003). Furthermore, jobs offered by small firms gives an individual the opportunity to engage in wide range of tasks than in large firms and an employee can easily acquire knowledge and skills which are important for opportunity identification and creation of a new business (Florida 2004; Shane 2000). In addition, a large share of small firms may facilitate the creation of social and business networks including contacts, which are considered to be an important source of information relevant for generating new business ideas (Arenius and De Clercq 2005; Ma et al. 2011).

The assumption that some regions are more entrepreneurial than others raises questions about whether the presence of a higher share of successful entrepreneurs within the region affects the likelihood of other people to become nascent entrepreneurs. Fornahl's (2003) work shows how the cognitive presentation in favour of entrepreneurship emerges, which lead to an increase in the number of entrepreneurs in the region and a specific regional entrepreneurial attitude to emerge. The essence of this approach is that an individual's perception of entrepreneurship is shaped by observing local successful entrepreneurs in operation in their socio-economic environment (Minniti 2005). This leads to learning, increasing the attractiveness and desirability of an entrepreneurial career and induce entrepreneurial behaviour. Indeed, observing local successful entrepreneurs help potential entrepreneurs to assemble appropriate resources required for starting or expanding their business and increases an individual's self confidence (Sorenson and Audia 2000). Accordingly, a higher

share of role models in the regions has a multiplier effect, i.e. the social image of role models spurs additional entrepreneurial activity making entrepreneurship self reinforcing (Bosma and Schutjens 2011; Minniti 2005). All this suggests that the density of newly established business owners increases the probability of other people to know or to be already in contact with local successful entrepreneurs. However, the effect of a higher share of individuals who know other entrepreneurs in the neighbourhood on the likelihood of an individual becoming an entrepreneur is not yet known.

In their cross country study, it is known that the share of individuals who know other entrepreneurs has no significant effect on the probability of an individual becoming an entrepreneurs (see Estrin et al. 2013b). Similarly, Mancilla et al (2010) found an insignificant effect. However, the insignificant effect found by these scholars may have been caused by a higher level of aggregation. Furthermore, these studies did not make a distinction between regional and foreign born migrants; therefore, our understanding of the effect of knowing other entrepreneurs at a sub-national level, that is, the neighbourhood level, on the probability of migrants to become entrepreneurs is still limited. The literature discussed above drive to propose the following hypothesis:

Hypothesis 3: A higher density of individuals who know other entrepreneurs in the neighbourhood will have a positive effect on the probability of regional migrants and immigrants to become entrepreneurs.

3.2.3 The entrepreneurial Culture

Another important determinant of the regional level of entrepreneurship is entrepreneurial culture. A number of studies focusing on established market economies generally agree that

the regional level of new firm formation seem to remain constant over a period of up to twenty years (Acs and Mueller 2008; Andersson and Koster 2011; Mueller et al. 2008) and recent evidence indicate a much longer period of up to eighty years (Fritsch and Wyrwich 2013). One explanation for the persistence of high start-up rates could be the presence of an entrepreneurial culture (Andersson and Koster 2011) a phenomenon also known as the "entrepreneurial capital" (Audretsch and Keilbach 2004a: 420). According to Beugelsdijk (2007: 190) entrepreneurial culture is the "positive collective programming of the mind" and others authors such as Freytag and Thurik (2007: 123) defined it as an "aggregate psychological trait" which explain the regional population's orientation towards entrepreneurship such as values and beliefs, legitimacy and institutions (Davidsson 1995; Davidsson and Wiklund 1997; Etzioni 1987). Audretsch and Keilbach (2004a: 420) defined entrepreneurial capital as the "regional milieu of agents" that may facilitate or limit new firm formation and proxy it with the rate of start-ups in the region. However, programming tends to happen during the early stages of life and has important implications for an individual's mindset and behaviour (Etzioni 1987). Etzioni stresses that one of the most important factor of entrepreneurial culture is spatial variation in attitudes towards, and social acceptance of entrepreneurs and entrepreneurial activity. Regions differ when it comes to societal legitimacy (see Davidsson and Wiklund 1997; Etzioni 1987). However, when entrepreneurial activity is considered as a legitimate form of economic activity there will be higher demand for it. Moreover, in the spirit of North (1994), societal acceptance of entrepreneurial activity can also be considered as informal institution in the sense that it does not change gradually but tend to remain fairly constant over a long time (see Fritsch and Wyrwich 2013).

A regional culture of entrepreneurship may also be shaped by industrial history of the region. Thus, regions characterised by very old large and dominant firms often prevented the creation of new firms or even the growth of small firms. If a region has such cultural characteristics, the

culture may be considered to be negative for entrepreneurs and new small firms (Wagner and Sternberg 2004). These are part of the infrastructure of supporting services which Audretsch and Keilbach (2004a) linked to entrepreneurship capital which they defined as the regional milieu of agents and institutions that facilitate new firm formation in the region. Entrepreneurship capital explicitly generates the creation of new firms by offering potential entrepreneurs with explicit or implicit knowledge, contacts and access to a wide range of resources. So, the presence of higher levels of this particular capital in the region can increases the propensity of potential entrepreneurs to start a business. Following this line of thinking, entrepreneurial capital equate to entrepreneurial culture.

Therefore, entrepreneurial culture has the potential to positively influence an individual's decision to become an entrepreneur, increases the probability of starting a new firm and success of new firm in terms of growth. However, culture tend to be persistent over a very long time and the literature on economic history indicates that this could be due to region specific cultural determinants of entrepreneurship that remain relatively constant over time (Andersson and Koster 2011; Fritsch and Wyrwich 2013; Mueller et al. 2008). One explanation for this phenomenon is based on the fact that institutions, individual beliefs, norms and behaviour reinforce each other (Fritsch and Wyrwich 2013). The main consequence is that higher levels of entrepreneurship built up institutions triggers more new business creation in the region (Andersson and Koster 2011; Audretsch and Keilbach 2007). In particular, trade associations, consulting firms or industry chambers are good examples of those (Saxenian 2002). Each of these institutions either explicitly or informally offer help to potential entrepreneurs to recognise business opportunities by bringing together local and regional agencies from finance, science and industry including opportunity for creating networks and contacts. Furthermore, repeated entrepreneurship within the region helps to shape the community's attitude towards entrepreneurship, leading to it being social accepted. Social

legitimisation may result in entrepreneurship to be considered as a viable career option and often reduces the stigmatisation of business failure within the region. This may be true as reflected by rapid growth of many high technology regions such as Silicon Valley in the USA which is linked to its strong entrepreneurial dynamic than any other region in the same country during the same period of time (Saxenian 2002). According to Saxenian (2002: 1), the dynamism draws skilled people to the region who start new firms in the region's "dynamic and technologically sophisticated industries". Therefore, regions with higher new firm formation rates reflect not only a favourable economic environment but also highlight the presence of an entrepreneurial and innovative condition in the region which is responsible for facilitating and sustaining higher rates of new firm formation. Based on these arguments the following hypothesis is proposed:

Hypothesis 4: The presence of a larger share of business owners in the neighbourhood will have a positive effect on the probability of an individual becoming an entrepreneur.

Assuming that regional variations in new firm formation rates can be traced back to history of the regional characteristics i.e. the share of small businesses (Andersson and Koster 2011; Bosma and Schutjens 2009b; Fritsch and Wyrwich 2013; Parker 2009; Tamásy 2006), it is reasonable to expect that regional characteristics have a strong positive effect on an individual's decision to engage in entrepreneurial activity. If a region has a high population of young and small firms, that can stimulate the creation of new small firm because of the presence of a high number of business owners. In this sense, the owners of these small firms act as role models contributing to an entrepreneurial friendly environment. Furthermore, people are imbedded in their local environment; therefore, a high share of small established businesses in the local community might increase the likelihood that a greater proportion of the region's adult population knows or is already in contact with business owners. Given that

recent studies found that migrants make a disproportionately positive contribution to the formation of new businesses (among others Clark and Drinkwater 2009; Constant and Zimmermann 2006; Levie 2007; Levie and Hart 2013) including high technological start-ups (Hart et al. 2009; Saxenian 2002) it is plausible to think that a higher share of small business owners in the local community will stimulate more migrants to become entrepreneurs. But it should be noted that regional migrants may also be at a more advantageous position than immigrants in resource acquisition since business related information such as business laws or regulations, products and market size do not vary much within the UK. In that sense, that might suggest that the effect of the density of established business owners should be much stronger for regional migrants than immigrants.

In addition, the discussion in migrants and knowledge creation base section mainly focused on the impact of migrants on the diversity of regional population and, knowledge and skills which directly contribute to innovation[1]. However, immigrants can make a significant indirect contribution to innovation through positive spill-over. Immigrants are more likely to have higher levels of innovation due to their high concentration in occupation such as research, science and engineering (Chiswick and Taengnoi 2007; Peri and Sparber 2011). This issue seem to be linked to a finding that natives are discouraged from enrolling in graduate schools, even in elite institutions by the higher concentration of foreign students (Borjas 2004). Since immigrants are over-represented in these occupations, the knowledge they create can be easily transferred to other countries where it can be commercially exploited. Other factors such as the host country's immigration policies and if immigrants are self selected, that facilities in the acquisition of more knowledge and skills or the development of other important unobserved innovative capabilities (see Hunt and Gauthier-Loiselle 2010). These authors

[1] Niebuhr (2010) also indicated that in German regions with diverse employee nationalities were more entrepreneurial.

provide empirical evidence which indicates that immigrants are more creative than natives and this was due to the fact that a higher proportion of the immigrants had higher levels of unique knowledge and skills, i.e. higher levels of formal education in science and engineering. However, Hunt and Gauthier-Loiselle (2008, 2010) and Kerr and Lincoln (2010) provided evidence which indicates that even when immigrants do not commercially exploit their entrepreneurial knowledge spills over and it is commercially exploited by others. This suggests that the presence of a higher density of innovative immigrants in the neighbourhood makes natives more entrepreneurial. However, this study argue that if a region has a people friendly climate, i.e. tolerance and openness towards people with different ethnical background, individuals living in that region can easily share ideas that may lead to higher levels of innovation. In contrast, the positive contribution of immigrants can be offset by negative spill over if the presence of immigrants in the neighbourhood discourages natives from living in the same community or from working with them (Borjas 2004). Therefore, I expect that the presence of a higher density of immigrants in a neighbourhood with a high density of business owners to trigger more natives to engage in start-up activities. This leads to the following hypotheses:

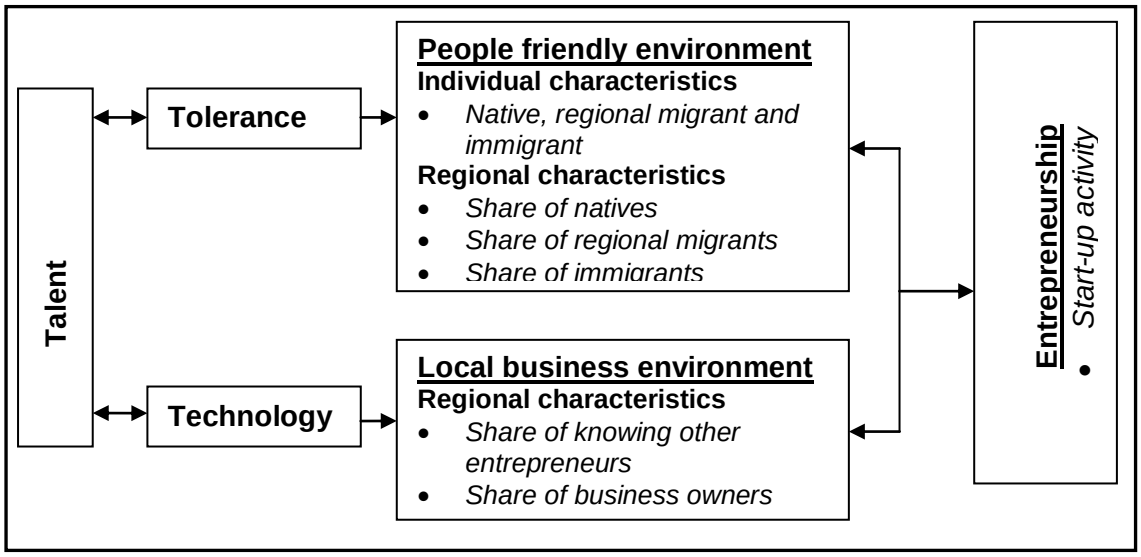
Hypothesis 5a: Due to positive spill over, a larger share of business owners in local neighbourhood will have a positive effect on regional migrant's likelihood to become an entrepreneur

Hypothesis 5b: Due to competition, a larger share of business owners in the neighbourhood will have a negative effect on immigrant's likelihood to become an entrepreneur.

3.3 DATASETS AND METHODS

As stated earlier, the main objective of this study is to examine whether and to what extent the combined individual and regional level characteristics affect entrepreneurial entry. Regarding entrepreneurial entry, it is assumed that since the decision to start a business is a local or even a 'regional' (Feldman 2001) event, local or regional forces will affect entrepreneurship even before the start-up stage. Therefore, a migrant's entrepreneurial activity at a neighbourhood level may be determined by influences from different spatial levels. The positive effects on migrants' entrepreneurial activity can be strengthened or distorted by forces operating at local or regional level. This study is akin to one by Bosma and Schutjens (2009a), where the observed differences in regional entrepreneurial activity are assumed to be the effect of specific regional factors - composition of regional working age population (creative or not); regional economic context and entrepreneurial culture. This framework enabled the formation of hypotheses related to the differentiated impact of regional characteristic on entrepreneurial entry. In order to test the hypotheses, the analysis combines individual level data with regional characteristics drawing on from different data sources. It is also important to note that this study uses cross sectional data to test the model. While it is acknowledged that when examining causal mechanisms, longitudinal data is superior to cross section data, but such longitudinal datasets containing a large number of regional observations designed to study entrepreneurial behaviour were not available to me; according to my best knowledge they do not exist. A summary of the main variables used in the conceptual model are presented in Figure 3.1

Figure 3.1 Proposed model showing the link between main variables and start-up



3.3.1 Individual level Data

At the individual level, the data is drawn from the UK Global Entrepreneurship Monitor (GEM) covering four years (2006 to 2009). it is generated through surveys and consists of random and stratified samples of at least 2,000 individuals per country (see Reynolds et al. 2005 for a comprehensive description of the survey methods and procedures). Although the GEM data was originally designed for the study of country difference, it also provides the opportunity to be utilised for sub-national level analysis as demonstrated in the previous chapters and other studies (Bosma and Schutjens 2009a; Levie and Hart 2013; Verheul and Van Mil 2011). The focus is on the East Midlands region, because the "Total Early Stage Entrepreneurial Activity" in the region remained constant and below the UK average between the years 2007 and 2009 (see Levie and Hart 2010: 21). The East Midlands sample size varied from 1,786 to 2,255 between the 2006 and 2009 resulting in a total of 8,347 usable cases. Merging individual level GEM data over a period ranging from 2006 to 2009 enable the creation of regional indicators of entrepreneurial activity pertaining to this period. Concerning pooling of the 2006 to 2009 data, this can be justified due to two reasons. First: patterns of regional entrepreneurial activity seem to be relatively persistent and path dependent over a long period (Andersson and Koster 2011; Fritsch

and Wyrwich 2013; Parker 2005). Second: evidence from existing literature clearly indicates the pervasive nature of regional differences in specific regional entrepreneurial culture and attitudes towards entrepreneurship (Beugelsdijk et al. 2006; Davidsson and Wiklund 1997). In addition, by harmonising and subsequently merging 2006 to 2009 GEM data for East Midlands allows us to have sufficient numbers of observations within this region to create the dependent and explanatory variables. Figure 3.2 below provides a description of all the variables used in the analysis.

The interest is on individual entrepreneurship, in particular entrepreneurial entry. In this study entrepreneurial entry is viewed as engagement in new start-up activity which refers to a concrete behaviour and the individuals involved are often referred to as nascent entrepreneurs. Following the standard GEM definition, nascent entrepreneurs are individuals between the working ages of 18 to 64 years who have taken some action towards creating a new firm in the past year and expect to own at least a share of the new business and must not have paid any salaries and wages for a period exceeding three months (Reynolds et al. 2005). Whereas, newly established entrepreneurs are those individuals who own or manage a business that have paid wages and salaries for a period not exceeding forty two months. The sample of start-up activity is drawn from these two categories available in East Midlands GEM survey data. In the analysis the dependent variable is coded as dummy. Therefore, entrepreneurial entry is broadly defined as any start-up activity as in Estrin and Mickiewicz (2011). This variable merges heterogeneous categories: i.e. non ambitious entrepreneurs and high aspiration entrepreneurs.

In the conceptual framework, origin of the individual entrepreneur (representing diversity of the creative class) is regarded as an important proximal predictor of an individual's entrepreneurship (e.g. Clark and Drinkwater 2009; Levie 2007; Zelekha 2013). This indicator is measured with a GEM question about whether the respondent was born in England, other UK member states (Wales, Scotland and Northern Ireland) and other

countries outside the UK. Hence, a categorical variable is employed where the value of (1) native (respondents born in England), (2) regional migrant (respondents born in Wales, Scotland and Northern Ireland) and (3) immigrant (respondents born outside the UK). Fewer studies have documented the existence of the relationship between entrepreneurial activity and migrant adjustment patterns in the host country with the exception of Borjas (1986), Clark and Drinkwater (2009) and Hammarstedt (2001, 2004, 2006, 2009). This is captured by the GEM question about the number of years an individual has been living in the region. The limited literature suggest that the relationship between the number of years living in the region and entrepreneurship is non linear. And the highest proportion of migrants entrepreneurs are in found among those who have recently arrived in the host nation (Hammarstedt 2001). Accordingly, the number of years elapsed since an migrant arrived in the region is expressed in a categorical form to determine the relationship between years living in the region and entrepreneurial activity and to investigate whether or not there is an inflection point beyond which the likelihood of migrants engaging in start-up activity changes, in other words, to determine if a non linear relationship exists.

A range of individual level control variables were included in the regression. Following previous research on new firm formation, education (Arenius and Minniti 2005; Constant and Zimmermann 2006; Davidsson and Honig 2003), employment status (Kim et al. 2006; Levie 2007) and perceived entrepreneurial skills (Arenius and Minniti 2005; Koellinger et al. 2007) are used as indicators of human capital and have all been shown to affect an individual's propensity to engage in entrepreneurial activity. Following prior research, additional control for the effect of gender on entrepreneurial activity is included (Reynolds et al. 2004). This variable also affect an individual's propensity to migrate and hence there is need control for in order to isolate the independent effect of migration on the probability to engage in entrepreneurial activity (see Clark and Drinkwater 2009; Constant and Zimmermann 2006; Yankow 2003).

Figure 2.3: Variable description

Variable	Description	Percentage
Dependent variables (Entrepreneurial entry)		
Start-up	0 = if respondent is not engaged in start-up activity 1= if respondent is not engaged in start-up activity	94.94 5.06
Individual level predictors		
Origin	Categorical variable: 1= native - if respondent is born in England, 2 = regional migrant - if respondent is born in other UK states (Wales, Scotland & N. Ireland), 3 = immigrant - if respondent is born Outside the UK	 89.86 3.53 6.60
Age	Respondent age	44.83 (Mean) 12.08 (SD)
Age squared	Respondent age squared	2155.4(Mean) 1053.16 (SD)
Yrs in region:	1 = Years living in region: 0 to 10 years 2 = Years living in region: 11 to 20 years 3 = Years living in region: 21 to 30 years 4 = Years living in region: Over 30 years	17.64 13.81 16.99 51.56
Individual level controls		
Gender: Male	0 = if respondent is female 1 = if respondent is male	59.35 40.65
Education: Degree and above	0= if respondent has other qualifications 1 = if respondent has Higher education qualification i.e. degree and above	15.91 26.56
In employment	0 = if respondent is not in employment 1 = if respondent is in employment	25.93 74.07
Knowledge& skills	0= if respondent has no the knowledge, skills and experience required to start a new business 1= if respondent has knowledge, skills and experience required to start a new business	68.17 31.83
Knowing other entrepreneurs	0 = if respondent does not know an entrepreneur 1= if respondent knows an entrepreneur in the past 2 years	85.28 14.72
Business owners	0 = if not a current owner/manager of business over 42 months old 1 = if current owner/manager of business over 42 months old	91.35 8.65
Regional characteristics		
Regional level controls		
LSOA classification	0 = if others areas 1 = if Urban areas	32.78 67.22
Regional level predictors		
Share of Regional migrants	Born in Wales, N. Ireland or Scotland (local prevalence rate; based on LSOA mean)	0.035 (Mean) 0.104 (SD)
Share of Immigrants	Born outside the UK (local prevalence rate; based on LSOA mean)	0.066 (Mean) 0.154 (SD)
Share of knowing other entrepreneurs	Personally knows someone who had started a business within the last two years (local prevalence rate; based on LSOA mean)	0.147 (Mean) 0.194 (SD)
Share of business owners	Owners-managers of businesses over 42 months old (prevalence rate; based on LSOA mean)	0.086 (Mean) 0.155 (SD)

3.3.2 Regional level data

The GEM individual level data described above is linked with regional level data that provides information on the level of socio-economic development in local communities where the respondents live. Regional data is drawn from the English Index of Multiple Deprivation (2007 release) and is at the Lower Super Output Area (LSOA) level. The data provides information about the community's level of socio-economic development of each LSOA in the East Midlands region. In total there are 2,732 LSOA each with an average population of 1,500 people (DCLG 2010). After cleaning the postcodes in the GEM database, I was able to classify each respondent in the East Midlands into his/her LSOA by inputting yearly datasets separately for all the postcodes from the GEM database into the Geo-Convert facility. Then, I ranked each respondent according to his/her local community's level of socio-economic development. I then split the sample into five equal groups according to their rank using the *quintile* facility in STATA. However, the choice of LSOA as an appropriate level of analysis needs some justification. Arguably, one could use wards or districts as the level for analysis but these are not homogenous units and can change so often for political reasons. In contrast, the size of LSOA remains static for a very long time. Therefore, the relevant regional dimension for studying entrepreneurs is of a much smaller size such as the LSOA because of spatial proximity of residents and geographical proximity of various organisations such as schools, pubs and recreation facilities which plays a crucial role in facilitating the interaction of people with different ethnical backgrounds and similar levels socio-economic development compels us to use the LSOA as functional spatial dimension.

3.3.3 Regional level predictors and controls

The regional characteristics discussed in Section 2; knowledge creation base, economic context and entrepreneurial culture are interlinked and cannot be easily quantified. As such, this study does not intend to measure them directly but, to rely on indicators that

reflect the outcome of the identified regional conditions. The author is confident that the indicators used in this study are able to capture the identified regional characteristics.

In this study, the share of migrants (i.e. regional migrants and immigrants) in the LSOA among the adult population is used as an indicator of knowledge creation base within the neighbourhood. Migrants are an important sub-group of the creative core, the melting pot, which consist of people who are engaged in solving complex issues that "involves a great deal of independent judgement" (Florida 2004: 8) and their "economic function is to create new ideas (...) or new creative content" (Florida 2004: 9) which is important for entrepreneurial entry. In most empirical studies, members of the creative class are identified by their occupations (Boschma and Fritsch 2009; Fritsch and Rusakova 2010; Stuetzer et al. 2013). This is problematic because most of the listed occupations such mathematicians, chemists and engineers require higher levels of education, that is, human capital that has been criticised by several scholars (Boschma and Fritsch 2009; Glaeser 2005; McGranahan and Wojan 2007). In particular Glaeser (2005) criticised Florida for not measuring creativity but human capital. I agree with Glaeser in that there has been some recognition that "it is what people actually do" and not their educational attainment or industry affiliation that makes individuals economically productive (Boschma and Fritsch 2009: 393). Therefore, an argument about treating migrants as a subcategory of the creative class is problematic; the latter approach immediately calls for some other proxies of creative class (see Boschma and Fritsch 2009; Fritsch and Stuetzer 2009; Rantisi et al. 2006). Following this line of thinking, this study does not consider migrants as a traditional form of human capital but as indicator of a specific regional knowledge creation base which generate new business related knowledge.

The share of individuals knowing entrepreneurs and share of established business owners in the neighbourhood are employed as indicators of regional economic context and entrepreneurial culture respectively. Employing these variables as indicators local

economic environment and local entrepreneurial culture is consistent with previous work (Audretsch and Keilbach 2004a; Bosma and Schutjens 2011; Davidsson and Honig 2003; Stuetzer et al. 2013; Wagner and Sternberg 2004). On the one hand, taking into consideration the claim that entrepreneurs are more likely to start their business from home or in a business premise close to where they live (Jayawarna et al. 2011; Storey 1994), it is reasonable to expect that neighbourhoods with higher shares of business owners to be more entrepreneurial and that also reflect the presence of an entrepreneurial friendly culture. Following this school of thought, start-up rates and large number of small firms are regarded as direct consequence of a positive regional entrepreneurial culture. Audretsch and Keilbach (2004a) employed this approach and used start up rates an indicator for regions' entrepreneurship capital. Following a number of scholars who have used past and existing regional level of entrepreneurship activity as indicators of entrepreneurship culture (Andersson and Koster 2011; Bosma and Schutjens 2011; Fritsch and Wyrwich 2013; Wagner and Sternberg 2004), the share of existing business owners, based on LSOA mean, is employed as a factor that captures the region's entrepreneurial culture. Similarly, turning back to Fornahl (2003) argument about the self augmenting process that might result in the emergence of a cognitive representation favouring entrepreneurship which lead to an increase in the number of entrepreneurs and specific entrepreneurial attitude in a region these attributes are more likely to differ within the neighbourhoods. While scholars such as Levie (2007) and, Minniti and Nardone (2007) considered knowing other entrepreneurs in the past two years as a measure for perceptions or attitudes towards entrepreneurship, in this study, this variable is employed as an indicator for socio-economic network condition that determine the development of entrepreneurial attitudes rather than the attitude itself and these attitudes may affect entrepreneurial activity. Since these socio-economic networks are spatially bound, it is expected that if a region is more entrepreneurial it should have a milieu where the entrepreneurial attitudes can be easily developed and translated into entrepreneurial

activity. This approach has been applied by several authors (e.g. Bosma and Schutjens 2011; Lafuente et al. 2007; Mancilla et al. 2010) in their studies of entrepreneurial activity.

3.4 ESTIMATION STRATEGY

In this study, the models are estimated using the maximum likelihood probit method which takes account of the discrete nature of the dependent variable. The probit specification consist of two stages: identification of an individual's binary choice of entrepreneurship (outcome equation) and the binary choice of entrepreneurial entry (selection equation) (Verbeek 2008; Wooldridge 2002). The first stage starts by focusing on the identification of an individual's binary choice of entrepreneurship expressed as:

$$y_i^* = x_{1i}\beta_1 + \varepsilon_{1i} \quad (1)$$

Where y_i^* in this case denotes an individual $i's$ choice of choosing to becoming an entrepreneur, and x_{1i} refers to a vector of all variables (individual level, regional characteristics and control variables) which are assumed to influence the outcome of y_i^*. Since the choice of entrepreneurial entry is not observed for people who do not engage in entrepreneurial activity, Y_i can be used as an indicator for whether the latent variable is positive where:

$$Y_i = \begin{cases} 1 \text{ if } Y_i^* > 0 \\ 0 \text{ if } Y^* \leq 0 \end{cases} \quad (2)$$

In this study, the second indicator used to measure actual entrepreneurship is entrepreneurial entry, i.e. start-up activity which have been widely employed in the empirical literature on entrepreneurship because of the availability of relevant data collected by GEM which makes it easier to compare results with those of previous studies (e.g. Bosma and Schutjens 2009a; Hessels et al. 2008b; Levie and Hart 2013). Since the

hypotheses concern entrepreneurs in general, the equation employed has a dependent variable coded as dummy and make estimates using a probit model. The dependent variable employed in the analysis enables to estimate the determinants of choice of entrepreneurial entry. Specifically the aim is to estimate the following equation:

$\Pr(y_1 = 1|X) = F(Xb_1)$. Where $y_1 = 1$ denotes that an individual chooses to be an entrepreneur and 0 otherwise, where F refers to the normal cumulative density function and $X =$ (1, for all the explanatory and control variables).

A similar approach has been employed in previous studies of entrepreneurship (see Estrin and Mickiewicz 2011; Grilo and Thurik 2005b; Grilo and Irigoyen 2006 among others). Since this study does not focus on random effects, a set of regional fixed effects are included which may provide a more consistent estimator even though it is acknowledged that probit models are not capable of producing credible Wald results (this issue will be covered in the following sections below).

Therefore, the core model is constructed in the following manner. Where i represent individuals, j denotes regional characteristics and the regression model employed in this study is specified as:

$$\textbf{Prob}\ (\textbf{Entrepreneurial entry})_{ij} = F(\beta_1\ \text{Regional migrant}_{ij} + \beta_2 \text{Immigrant}_{ij} + \beta_3\ \text{Age}_{\ ij} + \beta_4\ \text{Age squared}_{\ ij} + \beta_5\ \text{Yrs in region: 11 to 20 years}_{\ ij} + \beta_6\ \text{Yrs in region: 21 to 30 years}_{\ ij} + \beta_7\ \text{Yrs in region: Over 30 years}_{\ ij} + \beta_8\ \text{Gender: Male}_{\ ij} + \beta_9\ \text{Education: Degree and above}_{\ ij} + \beta_{10} \text{In employment}_{ij} + \beta_{11}\ \text{Knowledge and skills}_{\ ij} + \beta_{12}\ \text{Knowing other entrepreneurs}_{ij} + \beta_{13} \text{Business owners}_{ij} + \beta_{14}\ \text{LSOA classification: Urban areas}_{\ j} + \beta_{15} \text{Regional migrant}_{ij}\ \text{X}\ \text{11 to 20 years}_{ij} + \beta_{16}\ \text{Regional migrant}_{ij}\ \text{X}\ \text{21 to 30 years}_{\ ij}\ +$$

$\beta_{17}\text{Regional migrant}_{ij}$ X $\text{Over 30 years}_{ij}$ + $\beta_{25}\ \text{Immigrant}_{ij}$ X $\text{11 to 20 years}_{ij}$ +

$\beta_{26}\text{Immigrant}_{ij}$ X $\text{21 to 30 years}_{ij}$ + $\beta_{27}\ \text{Immigrant}_{ij}$ X $\text{Over 30 years}_{ij}$ +

$\beta_{18}\ \text{Share of regional migrants}_{j}$ + $\beta_{19}\ \text{Share of immigrants}_{j}$ +

$\beta_{20}\text{Share of knowing other entrepreneurs}_{j}$ + $\beta_{21}\text{Share of business owners}_{j}$ +

$\beta_{120}\text{Regional migrant}_{ij}$ X $\text{Share of knowing other entrepreneurs}_{j}$ +

$\beta_{220}\text{Immigrant}_{ij}$ X $\text{Share of knowing other entrepreneurs}_{j}$ +

$\beta_{121}\ \text{Regional migrant}_{ij}$ X $\text{Share of business owners}_{j}$ +

$\beta_{221}\ \text{Immigrant}_{ij}$X $\text{Share of business owners}_{i}$ + ε_{ij})

Where Entrepreneurial entry ij is dummy variable denoting whether or not an individual living in a particular East Midlands lower super output areas is engaged in start up activity or not.

In order to determine the effects of individual level variables (Regional migrantij, Immigrant ij, Regional migrantij X 11 to 20 yearsij, Regional migrantij X 21 to 30 yearsij, Regional migrantij X Over 30 yearsij, Immigrantij X 11 to 20 yearsij and Immigrantij X 21 to 30 yearsij) and regional characteristics (Share of regional migrants$j$, Share of Immigrants$j$, Share of Knowing other entrepreneurs$j$ and Share of business owners$j$) on the probability of becoming an entrepreneur seven models where generated. To test for the individual effects, specification of Model 1 included control variables (Ageij, Age squaredij, Yrs in region: 11 to 20 yearsij, Yrs in region: 21 to 30 yearsij, Yrs in region: Over 30 yearsij, Gender: Maleij, Education: Degree and aboveij, In employment, Knowledge and skillsij, Knowing other entrepreneursij, Business ownersij and LSOA classification: Urban areas$j$) and individual level variables (Regional migrantij and Immigrantij). Then in Model 2, in addition to control variables the model included individual level interaction variables (Regional migrantij X 11 to 20 yearsij, Regional migrantij X 21 to 30 yearsij, Regional migrantij X Over 30 yearsij, Immigrantij X 11 to 20 yearsij,

Immigrant$_{ij}$ X 21 to 30 years$_{ij}$ and Immigrant$_{ij}$ X Over 30 years$_{ij}$) to test for the effects of years living in the region on migrants' start-up activity.

In addition to this, regional characteristics (Share of regional migrants$_j$, Share of Immigrants$_j$, Share of Knowing other entrepreneurs$_j$ and Share of business owners$_j$) were introduced in Model 3 in order to distinguish the differences between individual and group effects. For example the coefficient β_2 for Immigrants$_{ij}$ denotes an individual effect of being a migrant born outside any of the UK states and coefficient β_{19} for Share of Immigrants$_j$ denotes the peer effect of immigrant prevalence rates in the East Midlands region's population that may affect an individual's entrepreneurial decision.

The fourth model which is based on the third model focuses on the interactive effects of being a migrant and of regional characteristic variables. At this stage the interaction between being a regional migrant and immigrant entrepreneur and each of the selected regional characteristics variables; Share of Knowing other entrepreneurs and Share of current owners of established businesses is examined. Thus, four regression models are specified on the basis of model three.

When interpreting the probit estimations it is important to be aware that the coefficients are not the effect on the dependent variable and they only indicate the direction of the influence of all the explanatory variables on the probability of becoming an entrepreneur. As such, the effect of a change in each of the explanatory variables on the probability of becoming an entrepreneur can be measured by marginal effects (Wooldridge 2002). In order to get a better understanding of the results, the first stage involves calculation of the first difference which refers to the change in the probability as a result of a specific change in a variable holding all other explanatory variables constant at their mean. The first

differences of all the dummy variables employed in this study are estimated as $\Pr(Y_i = 1|X_i = 1) - Pr(Y_i = 1|X_i = 0)$.

Since the specifications include regional characteristics X_j which are continuous explanatory variables their marginal effects are calculated in the following way. The marginal effect of a continuous variable is calculated by taking the derivative $X_j = \frac{\partial \phi(X_i^T \beta)}{\partial X_{ij}} = \phi\left(X_i^T \beta\right)\beta$. It is important to note that estimation of the marginal effects of a continuous explanatory variable X_j requires choosing a specific vector of the regressor value X_i^T. Therefore, in this study, X_i^T relate to the sample mean values of all the regressors. In addition to this, the study also analysed the effect that specific regional characteristic variables have over entrepreneurial activities by migrants i.e. the interaction effect. Therefore, to identify the characteristic that makes an individual more likely to become an entrepreneur, the study adopts an approach proposed by Norton et al (2004). The approach enables to obtain marginal effects when one continuous variable (Share of Knowing other entrepreneurs$j$ or Share of business owners$j$) and one dummy variable (Regional migrantij or Immigrantij) are interacted, where predicted change in the probability to become an entrepreneur emerges from the interaction of the selected variables and in this case the discrete difference, i.e. with respect to x_2, of the single derivative with respect to x_1 represented as:

$$\frac{\Delta \frac{\partial F(u)}{\partial x_1}}{\Delta x_2} = (\beta_1 + \beta_{12})\emptyset\{(\beta_1 + \beta_{12})x_1 + \beta_2 + X\beta\} - \beta_1\emptyset(\beta_1 x_1 + X\beta)$$

It is well known that the estimation of direct marginal effect of the term of interaction often produces biased results, therefore, the sign of the β_{12} may not necessarily indicate the actual interaction effect. As such one needs not to rely solely on the coefficient of the term β_{12} but consider the effects of other independent variables when interpreting the

results as rightly pointed out by Ai and Norton (2003). Despite this issue, the procedure adopted in this study enables to identify how strong or weak the effect of regional characteristic variables is on the likelihood of migrants becoming entrepreneurs in comparison with the effect it has on natives.

Finally, measures of goodness of fit were calculated of all the Models and these are presented in Table 3.2 below. Before presenting the results, measures for explanatory power of the models are presented are presented in Table 3.4 and 3.5. In addition, an examination of the relationship among the explanatory variables was carried out using the Collin function in Stata package to check if there are any potential multicollinearity problems. Multicollinearity may cause inflated standard errors and sensitivity of coefficients even when there are small changes in the explanatory variables. The two common measures of multicollinearity are tolerance and variance inflation factor (VIF). The results indicate that the minimum tolerance is 0.5218 and the maximum VIF is 1.92 which indicates that the relationship among the explanatory variables is very weak. This result lead to the conclusion that there is no cause for concern since there is no variable exceeding the conventional level of tolerance of 0.1 and VIF of 10. In addition, correlations of all the variables used in the regressions were calculated. The results are consistent with the VIF, even though some variables showed some correlation; problems to warrant further investigation are not anticipated since the coefficient values are not excessively high.

Finally, while most of the hypotheses concern environmental effects, it is important to account for the fact that our observations are interdependent within each local community (LSOA) when calculating standard errors and significant levels. Accordingly, the strategy adopted in this study is to cluster standard errors on LSOA to make them robust. The strategy was employed to deal with the issue related to the possibility that individuals residing in the same LSOA were more likely to have similar characteristics and resources

which differentiate them from others residing in other LSOA. Such correlation, if left unattended, is a violation of one of the classical assumptions of the regression models.

3.5 ESTIMATION RESULTS

Table 3.1 present results of the factors that affect an individual's probability to become an entrepreneur. The columns containing results represent each of the specifications in the models and from Table 3.1, column 2 to all the specifications in Table 3.2 I consider the interaction between migrants (Regional migrant and Immigrant) and regional characteristics (Share of Knowing other entrepreneurs and Share of current owners of established businesses). In summarising the results, the aim is concentrate on variables that represent the hypotheses. The variables of interest relate to: regional knowledge creation base, years in spent living in the region, regional economic context and entrepreneurial culture. In addition, the coefficients of the maximum likelihood estimations are presented in Table 3.3 and Table 3.4.

Based on *Hypothesis 1*, I expected that the presence of a higher share of immigrants in the neighbourhood is likely to have a positive effect on the probability of an individual to become an entrepreneur. That is a broader regional knowledge base which is more likely to be accessed directly through personal contact and easily accessed due to their high visibility in the local community. They also redistribute tacit and explicit knowledge including access to specific skills and, intra-regional and international networks which facilitate the transmission of opportunity related knowledge and new business ideas, which makes entrepreneurship career a more attractive choice for individuals. However, it was also argued that higher migration costs will prevent regional migrants to locate in regions where they can fully utilise their knowledge and entrepreneurial skills. Therefore there should be no significant differences between natives and regional migrants in their likeliness to engage in start-up activities since they are faced with similar hurdles. In Table 3.1, model 2, while the effect of having a higher share of regional migrants on the

propensity to be a nascent entrepreneur is negative and insignificant, the effect of a higher share of immigrants in the neighbourhood is positive and significant after controlling for a range of individual characteristics, supporting *Hypothesis 1.* Thus, having a higher share of regional migrants in the neighbourhood does not raise or lower the likelihood of an individual to engage in start-up activities. The opposite is true for immigrants; the results indicate that due to possession or access to unique knowledge and entrepreneurial skills immigrants as a group are more likely to engage in start-up activities than natives.

The argument proposed in *Hypothesis 2,* a recent migrant is more likely to engage in start-up activities soon after arriving in the host nation and this will be followed by a decline in his/her probability to become an entrepreneur as the number of years living in the region increases. This is expected to affect regional migrants only since immigrants are positively selected. It has also been argued that an immigrant, regardless of the time in the region, and native are affected in the same way to the same extent by this factor. However, in interpreting the effect this variable, the effects of all categories of years living in the region should be seen as relative to the benchmark or reference group which in this study is the lowest number of years which is 0 to 5 years. In Table 3.1, model 1, the results indicates that the effect of being a regional migrant on propensity to be a nascent entrepreneur is positive and statistically insignificant, yet the effect of being an immigrant on the likelihood of becoming a nascent entrepreneur is negative and statistically significant. However, when an interaction term of regional migrant with categories of years in region is included in model 3, the direct effect of being regional migrant on start-up remains insignificant when predicting the likelihood to become a nascent entrepreneur, and all the categories of the interaction term - Regional migrant X 6 to 15 years, Regional migrant X 16 to 26 years, Regional migrant X 26 to 35 years and Regional migrant X Over 35 years – are not significant. This tells us that an increase in the number of years (above 5 years) lived in the region does not increase or reduce their likelihood of a regional migrant to become an entrepreneur. The result is not consistent with *Hypothesis 2*. In Table 3.1, model 3, an

interaction term of an immigrant with categories of years in region is included and the negative effect of being an immigrant on start-up diminishes and becomes insignificant while all the categories of the interaction terms are insignificant. This indicate that an increase in the number of years (above 5 years) living in the region does not reduce or increase the likelihood of both recent and established immigrants to be involved in start-up activities which is consistent with *Hypothesis 2.* However, I cannot officially confirm *Hypothesis 2* as the magnitude of effects of Regional migrant X 6 to 15 years, Regional migrant X 16 to 26 years, Regional migrant X 26 to 35 years and Regional migrant X Over 35 years categories are very low and they are not statistically significant.

Based on *Hypothesis 3,* it was expected that the presence of a larger share of individuals who know other entrepreneurs in the neighbourhood is likely to have a positive effect on the probability of an individual becoming an entrepreneur. That is, by observing and interacting with local successful entrepreneurs, leads to learning, increasing the attractiveness and desirability of an entrepreneurial career. This has a multiplier effect, i.e. the social image of role models spurs additional entrepreneurial activity and make entrepreneurship self reinforcing and their accessibility help potential entrepreneurs to identify and assemble appropriate resources for starting and expanding their businesses. Indeed, in Table 3.1, Model 2 the effect of a larger share of individuals who know other entrepreneurs in the neighbourhood is not statistically significant indicating that having a higher proportion of individuals who know other successful entrepreneurs in the neighbourhood does not raise or reduce the likelihood of an individual to be involved in start-up activities. However, when the interaction term of regional migrant and share of knowing other entrepreneurs and, immigrant and share of knowing other entrepreneurs in the neighbourhood (based on Table 3.2, model 2) I find that the magnitude of the effect to be low and is not statistically significant. However, turning back to model 1, the results indicate that being a regional migrant has a positive and significant effect on the likelihood of becoming involved in start-up activities.

Table 3.1: The marginal effect of the covariates on the probability of becoming an entrepreneur (see probit estimates in Table 3.3 below)

	(1) Start-up	(2) Start-up	(3) Start-up
Regional migrant (d)	0.0167	0.0187	0.0278
	(0.0108)	(0.0142)	(0.0283)
Immigrant (d)	-0.0106*	-0.0154***	-0.00907
	(0.00478)	(0.00430)	(0.00870)
Age	0.0322**	0.0329**	0.0321**
	(0.0115)	(0.0115)	(0.0115)
Age squared	-0.0414***	-0.0417***	-0.0413***
	(0.0120)	(0.0119)	(0.0119)
Yrs in region: 6 to 15 years (d)	-0.00166	-0.00151	0.00129
	(0.00607)	(0.00605)	(0.00733)
Yrs in region: 16 to 25 years (d)	0.000610	0.000550	0.00113
	(0.00621)	(0.00618)	(0.00675)
Yrs in region: 26 to 35 years (d)	-0.00239	-0.00220	-0.00156
	(0.00553)	(0.00554)	(0.00616)
Yrs in region: Over 35 years (d)	-0.0132*	-0.0134*	-0.0122*
	(0.00558)	(0.00555)	(0.00602)
Gender: Male (d)	0.00797*	0.00796*	0.00802*
	(0.00347)	(0.00347)	(0.00345)
Education: Degree and above (d)	0.00457	0.00434	0.00485
	(0.00381)	(0.00375)	(0.00380)
In employment (d)	0.00228	0.00244	0.00194
	(0.00441)	(0.00437)	(0.00441)
Knowing other entrepreneurs (d)	0.0623***	0.0712***	0.0623***
	(0.00839)	(0.0113)	(0.00837)
Business owners (d)	0.229***	0.202***	0.227***
	(0.0185)	(0.0232)	(0.0185)
Share of Regional migrants		-0.00552	
		(0.0183)	
Share of Immigrants		0.0216+	
		(0.0128)	
Share of knowing other entrepreneurs		-0.0128	
		(0.00925)	
Share of business owners		0.0177+	
		(0.0104)	
Regional migrant X 6 to 15 years (d)			-0.0102
			(0.0140)
Regional migrant X 16 to 26 years (d)			-0.0160
			(0.0108)
Regional migrant X 26 to 35 years (d)			-0.00206
			(0.0193)
Regional migrant X Over 35 years (d)			0.00177
			(0.0256)
Immigrant X 6 to 15 years (d)			-0.0129
			(0.0104)
Immigrant X 16 to 26 years (d)			0.0193
			(0.0293)
Immigrant X 26 to 35 years (d)			-0.00331
			(0.0209)
Immigrant X Over 35 years (d)			-0.00358
			(0.0270)
Observations	8303	8303	8303
Pseudo likelihood	-1219.0	-1215.6	-1217.0
Wald chi^2	749.9	759.8	750.9
DF	13	17	21
Pseudo R^2	0.265	0.268	0.267

Note: + significant at 10% * 5%, ** 1%, *** .01% Clustered standard errors in parentheses.
Marginal effects; where (d) denotes the discrete change of dummy variable from 0 to 1

The results also indicate that being an immigrant has a negative and significant effect. Moving on to model 2, when the interaction term is included I observe some changes in coefficients of the regional migrant and immigrant variables. The interaction of a regional migrant and immigrants with a group of people who know other entrepreneurs in their neighbourhood increased the coefficient from 0.0170 to 0.0276 albeit remaining significant at 10% level. This indicate that a regional migrant is more likely to be involved in start-up activities than natives but his/her preferences of being involved in start-up activities does not reduce or raise when the group of people who know other entrepreneurs in the neighbourhood increases. While an immigrant is less likely to be involved in start-up activities compared to natives, as seen in model 1, but in model 2, the effect is reversed and the likelihood of an immigrant to be involved in start-up activity is similar to that of a native. This indicates that this factor affects an immigrant in an identical manner as it does to a native. Then in model 3, the interaction term of regional migrant and share of knowing other entrepreneurs is not included and the results indicate that the interaction of an immigrant with a group of individuals who know other entrepreneurs in the neighbourhood does not provide any additional benefits to an immigrant, in terms of whether or not to engage in start-up activities. However, in this model, I also observed that the effect of being a regional migrant on start-up declines but remains significant at 10 percent and is lower than that of model 1, indicating that the knowledge and ideas generated when an immigrant interacts with others who know entrepreneurs in the neighbourhood facilitates regional migrants to engage in start-up activities (spill over effect consideration). On the basis of these results, I cannot confirm *Hypothesis 3* as the effect of the immigrant variable is not statistically significant.

The argument propose in *Hypothesis 4* is that the presence of a larger share of owners of established businesses in the neighbourhood is likely to have a positive effect the probability of an individual becoming an entrepreneur. That is, persistence of high start-up rates, indicating the presence of a positive entrepreneurial culture, can increases the

propensity of potential entrepreneurs to start a business since business owners offer potential entrepreneurs with access to additional knowledge, contacts and a wide range of resources. This is confirmed in Table 3.1 Model 2 at 10% significant level.

Table 3.2: The marginal effect of the covariates on the probability of becoming an entrepreneur (see probit estimates in Table 3.4 below)

	(1)	(2)	(3)	(4)	(5)
	Start-up	Start-up	Start-up	Start-up	Start-up
Regional migrant (d)	0.0170+	0.0276+	0.0168+	0.00290	0.0168+
	(0.00947)	(0.0153)	(0.00941)	(0.00921)	(0.00940)
Immigrant (d)	-0.00635+	-0.00515	-0.00542	-0.00262	-0.00218
	(0.00343)	(0.00550)	(0.00543)	(0.00482)	(0.00496)
Age	0.00895	0.00977	0.00941	0.0103	0.00936
	(0.00797)	(0.00789)	(0.00793)	(0.00791)	(0.00791)
Age squared	-0.0176*	-0.0184*	-0.0180*	-0.0188*	-0.0179*
	(0.00823)	(0.00814)	(0.00818)	(0.00816)	(0.00817)
Gender: Male (d)	0.00103	0.00108	0.00109	0.00104	0.00110
	(0.00245)	(0.00243)	(0.00244)	(0.00243)	(0.00243)
Education: Degree and above (d)	0.00511+	0.00509+	0.00512+	0.00510+	0.00516+
	(0.00282)	(0.00280)	(0.00281)	(0.00280)	(0.00280)
In employment (d)	-0.000856	-0.000987	-0.000905	-0.00110	-0.000963
	(0.00342)	(0.00340)	(0.00341)	(0.00340)	(0.00340)
Knowledge and skills (d)	0.0577***	0.0574***	0.0576***	0.0581***	0.0575***
	(0.00637)	(0.00635)	(0.00636)	(0.00636)	(0.00634)
Knowing other entrepreneurs (d)	0.0262***	0.0304***	0.0305***	0.0303***	0.0306***
	(0.00555)	(0.00743)	(0.00745)	(0.00743)	(0.00746)
Business owners (d)	0.115***	0.0990***	0.0991***	0.0984***	0.0992***
	(0.0146)	(0.0165)	(0.0165)	(0.0164)	(0.0164)
LSOA classification: Urban (d)	-0.00189	-0.00173	-0.00166	-0.00155	-0.00177
	(0.00251)	(0.00249)	(0.00249)	(0.00248)	(0.00249)
Share of knowing other entrepreneurs		-0.00539	-0.00691	-0.00724	-0.00727
		(0.00686)	(0.00677)	(0.00663)	(0.00664)
Share of business owners		0.0109	0.0109	0.0104	0.0129+
		(0.00744)	(0.00749)	(0.00762)	(0.00763)
Regional migrant X Share of knowing other entrepreneurs		-0.0290			
		(0.0228)			
Immigrant X Share of knowing other entrepreneurs		-0.00520	-0.00371		
		(0.0200)	(0.0200)		
Regional migrant X Share of business owners				0.0573+	
				(0.0302)	
Immigrant X Share of business owners				-0.0395+	-0.0423+
				(0.0226)	(0.0228)
Observations	8303	8303	8303	8303	8303
Pseudo likelihood	-1130.9	-1128.6	-1129.3	-1125.4	-1127.8
Wald chi^2	895.2	893.5	896.9	889.1	901.4
DF	11	15	14	15	14
Pseudo R^2	0.319	0.320	0.320	0.322	0.320

Note: + significant at 10% * 5%, ** 1%, *** .01%. Clustered standard errors are in parentheses. Marginal effects; where (d) denotes the discrete change of dummy variable from 0 to 1

However, a complex story emerges for the effect of an interaction between a migrant and the share of business owners in the neighbourhood on start-up activities. In *Hypothesis 5a* it was argued that the positive effect of the presence of a larger share of owners of established businesses in the neighbourhood on the probability of becoming an entrepreneur will be much stronger for regional migrants. When an interaction terms of migrants (both regional migrant and immigrant) and share of business owners are included in Table 3.2, model 4, the direct effect of being a regional migrant on start-up observed in model 1 becomes insignificant, but the interaction term of regional migrant and share of business owners becomes positive and statistically significant. This indicate that being a regional migrant does not increase or reduce the likelihood of becoming involved in start-up activities, but a regional migrant would expect an increase in the likelihood of becoming nascent entrepreneurs when he/she interact with a group of business owners in their neighbourhood. However, when I included an interaction term of immigrants and share of business owners only (see Table 3.2, model 5) in the model, the effect of being a regional migrant on start-up becomes positive and statistically significant for regional migrants. The results indicate the presence of the spill-over effect were the new knowledge or business ideas generated when an immigrant interact with business owners increases the propensity of a regional migrant to engage in start-up activities and this supports *Hypothesis 5a.*

However, in *Hypothesis 5b* it has been argued due to competition, the presence of a larger share of business owners in the local community will have a negative effect on the probability of an immigrant to be involved in start-up activities. Based on Table 3.2, model 4, the results indicate that the direct effect of being an immigrant on start-up is statistically insignificant but the interaction term is negative and statistically significant. However, when I included an interaction term of immigrants and share of business owners only in Table 3.2, model 5, the effect of being an immigrant on start-up remains statistically insignificant but the effect of the interaction is even much stronger than that in model 4. In other words,

after controlling for a range of individual and regional characteristics, an immigrant may voluntarily engage in start-up activities but an immigrant would expect a decrease in his/her likelihood to engage in start-up activities when he/she interacts with a group of business owners in his/her neighbourhood. Thus, Hypothesis *5b* is formally confirmed.

3.6 DISCUSSION AND CONCLUSION

The objective of this chapter has been to examine the effect of regional characteristics, that is, knowledge base, the economic context and entrepreneurial culture, on an individual's start up activity. The interest has been on the effect of the interaction between individual level factors and regional characteristics at the neighbourhood level. In order to do this, I had to focus on the development of theoretically informed hypotheses of how the neighbourhood characteristics may affect an individual's decision to engage in start-up activity and how the peer pressure affect a migrant's engagement in start up activity.

It is acknowledged that this study has some important limitations that can potentially influence the results. Due to the cross sectional nature of the GEM data the results of this must be interpreted as correlative rather causal. Surely this is problematic since it has been impossible to model the longitudinal nature of the entrepreneurial entry process by examining the link between regional characteristics and start ups. In addition, important alternative indicators of entrepreneurial culture, such as individual level beliefs and values, may have been omitted which would have helped in enhancing our understanding of how regional characteristics affect an individual's likelihood to engage in start up activity. However, as it is almost impossible to come up with perfectly designed study that exposes the truth about real life, all I can do as a researcher is to try my best, using the available resources, to understand the nature of the issue I have an interest in.

So with these limitations, how can one interpret the results and is there anything exciting? I begin by providing evidence about the relationship between a climate of tolerance and a culture of openness which determine the presence of the creative class and level of entrepreneurship. To achieve my objective, there is no doubt that better direct indicators for measuring a climate of tolerance and a culture of openness are required (Boschma and Fritsch 2009; Fritsch and Stuetzer 2009; Rantisi et al. 2006) since it is problematic to presume that a diverse regional population is tolerant. Therefore, there is need for a clear identification of the group of people who are really creative so that they can be linked directly to other variables employed in the analysis so that I may resolve some of the ambiguities found in the literature which are highlighted above. In this case, distinguishing clearly the difference among the share of migrants may provide an indication of how the East Midlands community is open to foreigners and how well they adjust to their new environment. This study found empirical evidence for a direct effect of one of the regional characteristics, the presence of a higher share of immigrants in the neighbourhood on increasing the propensity to engage in start up activities. The findings is not only in line with those obtained from similar studies with respect to the greater contribution of immigrants to entrepreneurship (Clark and Drinkwater 2009; Kalantaridis and Bika 2006a; Levie 2007; Levie and Hart 2013; Zelekha 2013) but also highlight role of the neighbourhood characteristics, i.e. a larger share of migrants in neighbourhood, and how environmental affect start-up activities and differ between the migrant groups. Such evidence lead one to assume that at least Florida (2004) was not completely wrong when he proposed the hypothesis about the effects of creative people on innovation and entrepreneurship. Thus, a higher diversity in the neighbourhood population also leads to the reproduction of diversity, creating a higher variety in the demand for goods and services which stimulate the creation of new firms (Desrochers 2001; Florida 2004; Lee et al. 2004). This finding is particularly important since it demonstrates that immigrants as a group bring in new knowledge and skills that may be related in one way or the other but not similar to that of others or unrelated to the exciting knowledge base. It is their ability to

combine new knowledge with existing knowledge and the newly combined knowledge forms an important source of innovation leading to the creation of new firms which are one of the features of a dynamic region (Schumpeter 1934). Regarding the share of regional migrant variable, there is no empirical evidence found that this factor affects an individual in terms of their probability of choosing to be an entrepreneur. This does not mean that having a larger share of regional migrants in the local community does not affect an individual's probability to engage in the new firm formation process. The consequence of this finding is that a larger share of regional migrants in the local community and natives has an identical effect on the likeliness of becoming an entrepreneur. This is not surprising since there would not be any significant difference in institutions such as universities, trade associations, and others that offer technical, financial and networking services in all the UK member states which play a crucial role in the knowledge creation process. In other words, regional migrants bring in knowledge that is similar to the existing knowledge based therefore their effect as a group on start-up is similar to that of the natives. However, results seem to be in conflict with Levie's (2007) finding which investigated determinants of entrepreneurship at regional level. A closer examination of the root cause behind the issue reveals that the regional difference in our dependent variables may be explained by a regional composition effect. To the best of my knowledge studies that control for composition effects often tend to report small or even insignificant correlations between regional characteristics and entrepreneurial activity (for example, Bosma and Schutjens 2011; Mancilla et al. 2010). Indeed, it makes the empirical work much more difficult to carry out but the author believe that employing such controls as individual or regional characteristics makes sense and produces sound results. However, the finding has important managerial and policy-making implications.

I argued that that recent regional migrants are more likely to engage in start-up activities soon after arriving in the host nation and this will be followed by a decline in their probability to become entrepreneurs as the number of years of living in the region

increases. In addition, I also argued that an immigrant, regardless of the time he/she has been in the region is affected in the way as it does to a native. These differences are particularly important as they indicate a bifurcation of entrepreneurs that are likely to emerge in the neighbourhoods. When an interaction term of immigrant and categories of years in region is included and the negative effect of being an immigrant on start-up diminishes and becomes insignificant while all the categories of the interaction terms are statistically insignificant, indicating that the number of years spent living in the region has no effect on an immigrant's entrepreneurial entry. This makes sense because the opportunity cost debate is irrelevant when considering the fact that immigrants are a self selected group and dynamic risk takers. This is consistent with findings from previous studies (see Bauder 2005). For regional migrants who have been living in the region for more than 5 years a similar effect has also been confirmed. This may be explained by the fact regional migrants' bring in knowledge and skills which is similar to that of natives, hence the magnitude of the effect is identical.

Regarding the economic context, the results indicate that the share of individuals who know other entrepreneurs in the neighbourhood on does not increase or reduce the probability of becoming an entrepreneur. The finding is consistent with those from cross country studies (see Estrin et al. 2013b; Mancilla et al. 2010) who found a no significant effect. However, when an interaction term of regional migrant and share of individuals who know other entrepreneurs and, immigrant and share of individuals who know other entrepreneurs are included the same model, the magnitude of the direct effect of being a regional migrant on start-up increased from 0.0170 to 0.0276 but remained significant at 10% level, yet the direct effect of being an immigrant on start-up becomes insignificant when predicting start-up, and the interaction term is negative and insignificant. This tells us that being a regional migrant increase the likelihood of being involved in start-up but a regional migrant would not expect a lower or higher probability of starting a new firm. Yet being an immigrant does not raise or lower the likelihood of being involved in start-up but

immigrants do not expect lower or higher probability of starting a new firm. When the interaction term of regional migrant and share of individuals who know other entrepreneurs is excluded in the model the direct effect of being a regional migrant on start-up decreased from 0.0276 to 0.0168 but remain significant at 10% level, and direct effect of being an immigrant on start-up also remain insignificant when predicting start-up and the interaction term is negative and insignificant. Here the direct effect of being a regional migrant on start-up in Model 1 and 3 is relatively similar but it is higher in Model 2 when both a regional migrant and an immigrant interacts with a group of people who know other entrepreneurs in their neighbourhood, suggest that regional migrants' start-up activities are driven by the presence of immigrants in the neighbourhood. Therefore, the regional migrants' likelihood of becoming entrepreneurs may be partly explained by the "spill over effect", were during their interaction, immigrants might generate viable business ideas but do not commercially exploit them and these ideas are exploited by others, i.e. regional migrants.

Finally, with respect to another important component of the regional characteristics, entrepreneurial culture, the results obtained indicates that a higher share of owners of established businesses in the neighbourhood increases the probability of establishing a new business which is in congruent with recent studies which argue that new firm formation rates are linked to the history of the regional characteristics i.e. the share of small businesses (Andersson and Koster 2011; Bosma and Schutjens 2009b; Fritsch and Wyrwich 2013; Parker 2009; Tamásy 2006). Indeed success in new firm formation and its sustainability depends on the region's entrepreneurial culture, such as values and beliefs, legitimacy and institutions (Audretsch and Keilbach 2004a; Beugelsdijk 2007; Davidsson 1995; Davidsson and Wiklund 1997; Etzioni 1987; Freytag and Thurik 2007) hence I found the positive effect of a higher share of business owners in the neighbourhood (an environmental effect) on increasing the propensity to start-up a firm. Therefore, the results are consistent with the view that patterns of start-up activities across space and time are

shaped by very slow changing regional characteristics and responding systems that operate at a neighbourhood level.

The results for the effect of an interaction between a regional migrant and share of business owners on start-up activities turned out to be positive and significant. Yet, when an immigrant interacts with a group of business owners in his/her local community he/she is less likely going to start a new business. The story derived from this finding is that the relationship between a regional migrant or immigrant or share of business owners in the neighbourhood and start-up activities is not straightforward. In light of this, there may be other informal institutional and local neighbourhood forces at play which at an individual level may reinforce or hinder the decision to engage in start-up activities. In this case, at the neighbourhood level, I may explain the difference in the direction of the magnitude of the effects of share of business owners on a migrant's probability to engage in start-up activities by distinguishing between individuals who have a concrete entrepreneurial behaviour from those who think or may have the skills, perceive good entrepreneurial opportunity in their local community but they are not involved in the start-up process. Although in East Midlands immigrants are less likely to engage in start-up activities due to tougher competition, this does not mean that they do not contribute effectively to the economic growth of their local community through the creation of new businesses. Bearing in mind that immigrants are over-represented in knowledge creating occupations (Chiswick and Taengnoi 2007; Peri and Sparber 2011), they have higher levels of knowledge and skills and can make a significant indirect contribution to innovation and entrepreneurship. In this case, the finding indicates that there are fewer immigrants who commercially exploit their knowledge resulting in their knowledge spilling over (see Hunt and Gauthier-Loiselle 2008, 2010; Kerr and Lincoln 2010) and being commercially exploited by regional migrants, hence they are more likely to start-up a business than natives. However, the spill-over effect is even strong when I excluded the interaction term of regional migrants and share of business owners in the regression model which again point to their very

important role of an immigrant in acting as stimuli, that is, increasing the chances of regional migrants to start up new businesses. Therefore, in this case, both a regional migrant and an immigrant are active agents who contribute effectively to the economic growth of the local community and region through the creation of new businesses.

The importance of the findings is that they contribute to two fields of study; entrepreneurship and immigration. However, the results generated some implications for academics, policy makers and other stakeholders. The results indicates that there is need for more in-depth studies at either the local or regional level to determine if and what other factors in addition to those considered in this study may affect migrants' entrepreneurial activities. This is particularly important because answering this question would help policy makers to generate effective policies for attracting and integrating migrants and creation of businesses which in turn lead to increase their impact on the local and regional economies. In addition, given that this study addressed the probability of engaging in entrepreneurial activity from a static view, therefore, the challenge for future research is to carry out dynamic analysis in order to enhance our understanding of the causal mechanisms.

To policy makers, given that this study provided evidence which indicates that migrants create proportionally more businesses than natives, and one of the main government's objective is that of economic growth, migrants are active agents who can directly and effectively contribute to this objective. This can only be achieved if migrants represent a significant proportion of the population in their local communities. Therefore, success in attracting creative and innovative individuals to the region need not to rely on the creation of conducive regional economic environment but a people friendly environment which facilitate migrants to interact without fear or abandoning their identity (Desrochers 2001; Florida 2004) and this is why the results points to the importance of wider knowledge creation base and entrepreneurial culture on start up activities. For stakeholders, the

implications are not different to those discussed above but it is urged that migrants should be considered as a target group which help in the creation of businesses which may contribute effectively not only to the regional economy but to the growth of their local economy.

Table 3.3: Probit estimates

	(1) Start-up	(2) Start-up	(3) Start-up
Regional migrant	0.233+	0.257	0.351
	(0.126)	(0.159)	(0.272)
Immigrant	-0.221+	-0.363*	-0.184
	(0.123)	(0.141)	(0.209)
Age	0.556**	0.572**	0.556**
	(0.202)	(0.202)	(0.201)
Age squared	-0.714***	-0.726***	-0.716***
	(0.212)	(0.212)	(0.211)
Yrs in region: 6 to 15 years	-0.0292	-0.0268	0.0221
	(0.109)	(0.109)	(0.123)
Yrs in region: 16 to 25 years	0.0104	0.00951	0.0194
	(0.106)	(0.106)	(0.114)
Yrs in region: 26 to 35 years	-0.0424	-0.0393	-0.0276
	(0.100)	(0.101)	(0.111)
Yrs in region: Over 35 years	-0.233*	-0.240*	-0.216*
	(0.0995)	(0.0997)	(0.108)
Gender: Male	0.134*	0.135*	0.135*
	(0.0578)	(0.0582)	(0.0579)
Education: Degree and above	0.0762	0.0729	0.0810
	(0.0615)	(0.0614)	(0.0615)
In employment	0.0401	0.0433	0.0342
	(0.0789)	(0.0791)	(0.0788)
Knows an entrepreneur in past 2 years	0.670***	0.737***	0.672***
	(0.0601)	(0.0776)	(0.0603)
Owners of existing businesses	1.401***	1.312***	1.400***
	(0.0686)	(0.0875)	(0.0687)
Share of Regional migrants		-0.0961	
		(0.319)	
Share of Immigrants		0.376+	
		(0.219)	
Share of knowing other entrepreneurs		-0.222	
		(0.161)	
Share of business owners		0.308+	
		(0.180)	
Regional migrant X 6 to 15 years			-0.217
			(0.379)
Regional migrant X 16 to 26 years			-0.410
			(0.447)
Regional migrant X 26 to 35 years			-0.0371
			(0.360)
Regional migrant X Over 35 years			0.0297
			(0.419)
Immigrant X 6 to 15 years			-0.295
			(0.324)
Immigrant X 16 to 26 years			0.261
			(0.317)
Immigrant X 26 to 35 years			-0.0609
			(0.409)
Immigrant X Over 35 years			-0.0662
			(0.533)
Constant	-2.172***	-2.185***	-2.188***
	(0.114)	(0.115)	(0.119)
Observations	8303	8303	8303
Pseudo likelihood	-1219.0	-1215.6	-1217.0
Wald chi^2	749.9	759.8	750.9
DF	13	17	21
Correctly predicted	0.951	0.951	0.951
Pseudo R^2	0.265	0.268	0.267

Note: + significant at 10% * 5%, ** 1%, *** .1%. Clustered standard errors in parentheses

Table 3.4: Probit estimates

	(1) Start-up	(2) Start-up	(3) Start-up	(4) Start-up	(5) Start-up
Regional migrant	0.314*	0.449**	0.312*	0.0691	0.312*
	(0.133)	(0.173)	(0.133)	(0.205)	(0.134)
Immigrant	-0.191	-0.151	-0.159	-0.0716	-0.0588
	(0.128)	(0.190)	(0.190)	(0.142)	(0.142)
Age	0.226	0.249	0.239	0.262	0.239
	(0.204)	(0.204)	(0.204)	(0.205)	(0.204)
Age squared	-0.445*	-0.470*	-0.458*	-0.482*	-0.457*
	(0.213)	(0.213)	(0.213)	(0.214)	(0.213)
Gender: Male	0.0258	0.0273	0.0276	0.0265	0.0279
	(0.0614)	(0.0617)	(0.0617)	(0.0618)	(0.0617)
Education: Degree and above	0.121+	0.122+	0.122+	0.122+	0.123+
	(0.0631)	(0.0632)	(0.0632)	(0.0633)	(0.0631)
In employment	-0.0214	-0.0248	-0.0227	-0.0278	-0.0242
	(0.0848)	(0.0848)	(0.0848)	(0.0848)	(0.0847)
Perceived knowledge and skills	0.931***	0.933***	0.933***	0.942***	0.934***
	(0.0764)	(0.0762)	(0.0762)	(0.0762)	(0.0760)
Knowing other entrepreneur	0.461***	0.516***	0.516***	0.516***	0.518***
	(0.0650)	(0.0837)	(0.0836)	(0.0839)	(0.0837)
Business owners	1.108***	1.023***	1.022***	1.021***	1.025***
	(0.0730)	(0.0905)	(0.0905)	(0.0904)	(0.0903)
LSOA classification: Urban	-0.0470	-0.0435	-0.0415	-0.0391	-0.0443
	(0.0613)	(0.0615)	(0.0615)	(0.0618)	(0.0616)
Share of knowing other entrepreneurs		-0.137	-0.175	-0.185	-0.185
		(0.175)	(0.172)	(0.169)	(0.168)
Share of business owners		0.278	0.277	0.265	0.328+
		(0.189)	(0.189)	(0.194)	(0.193)
Regional migrant X Share of knowing other entrepreneurs		-0.739			
		(0.577)			
Immigrant X Share of knowing other entrepreneurs		-0.133	-0.0940		
		(0.507)	(0.506)		
Regional migrant X Share of business owners				1.465+	
				(0.767)	
Immigrant X Share of business owners				-1.009+	-1.079+
				(0.555)	(0.558)
Constant	-2.603***	-2.615***	-2.609***	-2.609***	-2.616***
	(0.0913)	(0.0943)	(0.0938)	(0.0943)	(0.0941)
Observations	8303	8303	8303	8303	8303
Pseudo likelihood	-1130.9	-1128.6	-1129.3	-1125.4	-1127.8
Wald chi^2	895.2	893.5	896.9	889.1	901.4
DF	11	15	14	15	14
Correctly predicted	0.953	0.952	0.952	0.952	0.952
Pseudo R^2	0.319	0.320	0.320	0.322	0.320

Note: + significant at 10% * 5%, ** 1%, *** .1%. Clustered standard errors in parentheses

CHAPTER FOUR

4 THE INFLUENCE OF GENDER, RESOURCE ENDOWMENTS AND THE LOCAL ENVIRONMENT ON ENTREPRENEURSHIP

4.1 INTRODUCTION

It has been recognised that the regional context is a major determinant of new firm formation in the entrepreneurship field (Davidsson and Wiklund 2007). Although there has been an increase in the share of firms founded by women, men are more than twice likely to start a business (Levie and Hart 2010; OECD. 2010). While we already know much about the characteristics of the firms from business demographic datasets in relation to the size of firms, business age, location and industrial sector (e.g. Anyadike-Danes et al. 2009; BERR 2008), investigations of how the characteristics of founders influence the formation of women versus men's start-ups and growth ambitions have received scant attention (Autio 2007). This is a crucial gap in the literature on new firm formation since women entry decision is known to be driven by different motives from those of men (Kepler and Shane 2007; Manolova et al. 2008; Taylor and Newcomer 2005). Understanding which factors facilitates or hinder birth of women and men's start-ups is important since new firms are considered as a potential source of economic growth, innovation, employment opportunities and competitiveness for particular regions (Acs 2008; Carree and Thurik 2008; Parker 2009). While prior studies have addressed issues such as women's formal labour participation, occupational segregation, pay differences between men and women and work/family responsibilities (Duberley and Carrigan 2013; Marlow and McAdam 2013; Wilson and Tagg 2010), relatively little quantitative research has been carried out in the UK to determine how the characteristics of the founder facilitate or limit women and men's self-employment and ambitious start-ups differently, despite that a number of studies provide evidence of a significant and persistent gap in early-stage entrepreneurial activity between men and women (see Allen et al. 2008; Kelley et al. 2011b; Levie and Hart 2010; Marlow et al. 2012).

Entrepreneurs are considered to be a heterogeneous group and only a small proportion of them make a significant contribution to job creation (Cowling et al. 2004) and economic growth (Blanchflower 2004; Shane. 2009). In this study a distinction is made between

ambitious entrepreneurs and others categories of non-ambitious entrepreneurs. In line with this, ambitious entrepreneurs are defined as those entrepreneurs who hire other workers and non-ambitious entrepreneurs (referred to hereafter as self-employed) are distinct in the sense that they create jobs for the owner(s) only and do not hire external labour. However, this distinction has been ignored to a greater extent in the entrepreneurship literature (Carrasco 1999; Cowling et al. 2004; Honig 1998: are notable exceptions). Therefore understanding entrepreneur heterogeneity becomes the key issue in the current economic framework where several governments tends to favour measures that facilitate transition from unemployment to self employment by encouraging the unemployed young people, women and ethnic minority groups to create and run businesses as a way of reducing unemployment (Kluve et al. 2007). For example, in the UK, several policy initiatives, such as the Strategic Framework for Women's Enterprise (DTI 2003) and Greater Returns on Women's Enterprise (WETF 2009), were designed to increase the number of women starting and growing businesses. However, these policies were based on the assumption that female entrepreneurs were more averse to debt than male entrepreneurs that resulted in the undercapitalisation of their business during their life cycle and that adversely affected their business growth. However, in the UK, there is no study to date that has examined how possession and access to resource may facilitate of constrain women and men differently at a neighbourhood level.

In this chapter I posit that this is an important theoretical and empirical gap in the entrepreneurship literature since we already know that female entrepreneurs often establish durable relationships with their local community, making social factors more important to them than their male counterparts (Berrone et al. 2010; Brush et al. 2001a; Chua et al. 2008; Sullivan and Meek 2012). If it is correct that social factors are important in shaping the entry decision of women, then they might be motivated by different neighbourhood characteristics compared to male entrepreneurs. Therefore, meso and macro level examination of women versus men may yield biased results unless they take

into account these factors. Given that the life and work backgrounds of women and men differs, I posit that certain neighbourhood characteristics may be more or less conducive to a specific type of start-up and theorise that economic and social factors influence the entry decision of women and men in a different way. In particular I argue that neighbourhoods characterised by lower levels of financial resources, human capital and higher levels of existing female businesses will experience a higher rate female start-ups. In contrast, I posit that a neighbourhood characterised by higher levels of financial resources, human capital and higher level of existing business owners will experience a higher level of male start-ups. By doing this, I attempt to address the theoretical and empirical gap in the entrepreneurship and organisational ecology literature which stresses on the importance of the local environment that significantly influence an individual's entry choice and how businesses emerge or expand (Aldrich and Kim 2007; Audia et al. 2006; Batjargal et al. 2009; Granovetter 1985; Minniti 2005; Stinchcombe 1965).

Accordingly, the objective of this study is to examine how the individual level resource endowments and the local environment influence women and men's decision to become self-employed and ambitious entrepreneurs. To this effect, I draw on the economic literature on occupational choice as a theoretical anchor for the study of entrepreneurial occupational choice as a decision based on individual level factors (Blanchflower and Oswald 1998; Douglas and Shepherd 2002; Evans and Jovanovic 1989; Lazear 2005). We already know that the likelihood of becoming an entrepreneur is influenced by possession and access to resources; therefore, I build a model of nascent entrepreneurship that includes human, social and financial capital. Since these resources are heterogeneously distributed in the society, such differences in the distribution of resources among different groups in society, that is, men and women, result in inequalities in career aspirations and economic success. A number of scholars believe that more women than men have limited access to financial, human and social capital (Brush et al. 2004; Hart et al. 2011; Manolova et al. 2007; Marlow and Patton 2005). They generally agree that the unequal distribution of

resources in society limits the women's ability to start and grow their businesses (Fairlie and Robb 2009).

I examine determinants of the likelihood of being involved in self-employment and ambitious start-ups by applying a multinomial logit as an estimator on the Global Entrepreneurship Monitor (GEM) data (2006-2009) with 8,303 respondents who reside in the East Midlands region. This method enables to examine systematic differences of how economic and social factors influence the two type of entrepreneurial entry at both the individual and the neighbourhood level. I believe this theoretical framework and empirical findings makes three important contributions to the entrepreneurship and organisational ecology literature. First, I contribute to these fields by providing evidence that the distinctiveness between male and female's self employment and ambitious start-up manifest itself at the sub-national level, a neighbourhood level is commonly ignored in the studies of self-employment and ambitious start-ups. Second, in doing so, I respond to entrepreneurship scholars who have repeatedly called for studies to investigate the reasons and mechanisms behind the persistent and systematic differences in the rate of entrepreneurial activity between men and women (Langowitz and Minniti 2007). Third, focusing on wealth, I highlight the role of different categories of wealth on nascent entrepreneurship and contribute by extending the focus from established businesses to nascent entrepreneurial activity at the neighbourhood level.

The rest of the chapter is organised as follows. In the next section I present the conceptual framework and the theoretical background from which I derive the hypotheses. Then, I describe the data and methods used in our empirical analysis. Following from this, I summarise the results of the multinomial logistic regressions as formal tests of the hypotheses. Finally, I offer a discussion and draw managerial and policy implications.

4.2 THEORETICAL FRAMEWORK AND HYPOTHESES

The literature on entrepreneurship research has provided several theoretical frameworks which seek to explain why some but not all people choose to become entrepreneurs. The first stream of studies was dominated by the classical approach which emphasised on the role of an individual as the ultimate decision maker and aim to derive explanations from an individual's psychological factors (Busenitz 1999; McClelland 1967). Those who subscribed to this approach stressed on the importance of risk and uncertainty associated with the choice of entrepreneurship as an occupation and argued that only individuals with higher achievement motive, tolerant to risk and uncertainty will become entrepreneurs. From this perspective, the context of an individual played a minor role since entrepreneurs where considered to driven by higher "perceived probability of success ... particularly when there are no facts to justify their estimates" (McClelland 1967: 222). Although this approach dominated during the early period of entrepreneurship research, it failed to succeed in identifying potential entrepreneurs and explain the persistent variations in self-employment decisions across the society (Brockhaus and Horwitz 2002).

Another stream of entrepreneurship research adopted the sociological approach which seeks to explain the entrepreneurial occupational choice as an individual's response to his/her conformity to institutional isomorphic constrains (see Aldrich 1979; Aldrich and Fiol 2007; DiMaggio and Powell 1983; Sørensen 2007: among others). Within this tradition, scholars examined either the role that the external environmental forces exerted on entrepreneurs or the response of entrepreneurs to external environmental forces expressed in terms of the social and cultural expectations in the society in which the entrepreneur operates. Although this approach naturally accommodated for the variations in entrepreneurship rates across the society, these variations are seen as an outcome of non-economic forces. Therefore, economic utility consideration is considered to be of lesser importance for the entrepreneurial occupational choice since an individual's new economic activities had to conform to accepted formal and informal rules and standards.

In addition to the psychological and sociological perspectives the economic perspective on entrepreneurial occupational choice provides a different approach to examine individual entrepreneurial entry decision (Blanchflower and Oswald 1998; Douglas and Shepherd 2002; Evans and Jovanovic 1989; Lazear 2005). The economic perspectives explains how differences in individuals' resource endowments, human, social and financial capital shapes the decision to become an entrepreneur and models it as a utility maximizing career choice (Blanchflower and Oswald 1998; Douglas and Shepherd 2002). These authors argue that an individual will choose to become an entrepreneur if the expected total utility from entrepreneurship is higher than the expected total utility from other alternative economic or noneconomic activity options. Of course, the expected total utility is based upon economic and non-economic returns and depends on many factors that can affect an individual's entrepreneurial entry decision (Grilo and Thurik 2008; Millan et al. 2013; Parker 2009). According to Verheul et al (2002), entrepreneurial occupation decisions are considered after making an assessment of the potential risk and rewards of all the other employment options. During the assessment period, an individual takes into account environmental factors (opportunity and opportunity cost) including his/her personal characteristics. Certainly, work can provide both economic and noneconomic utility. However, self-employment often provides lower levels of economic utility than salaried employment (Van Praag and Versloot 2007). Furthermore income from self-employment is more varied than earnings from salaried work, which leads to the suggestion that individuals who are self-employed enjoy greater non economic benefits such as independence or satisfaction (Bianchi 2012)

The conceptual framework adopted in this study is the utility maximisation focusing on individuals who are in the early stages of the entrepreneurial process and the sample is divided into three categories passive (those who are not involved in entrepreneurial activity) self-employed and ambitious start-ups (growth oriented). Since the interest is on

two occupational decisions, that is, entry from passive into self employment and entry into ambitious start-up, referred forthwith as entrepreneurial entry decision. Indeed these decisions are driven by the strategies and goals of individuals that are directly influenced by resource endowments such as human capital, social capital, financial capital and wealth (Lee and Cowling 2013). The role of these resources in influencing the entry decision is more transparent when their absence is considered to be barrier. For example, human capital, an individual with higher level of educational qualifications is more likely to start a high growth oriented business than an individual without any formal qualification. Indeed, some businesses in the service sector require owners to have formal qualifications, as such, discriminating the unqualified individuals from starting up a business (Jarvis and Rigby 2012). Businesses owned by highly educated individuals are expected to generate high economic returns for their owners and if not these owners would close the business and find good jobs in the industry which pays relatively well. Certainly, innovative entrepreneurs make a significant contribution to economic growth (Ács and Audretsch 2010) but a very small proportion engage in entrepreneurial activities. Evidence from GEM studies indicates that in innovative-driven economies such as the US, UK or Germany only 1 to 2 percent of the adult working population start a new high growth oriented business very year (Kelley et al. 2011a; Xavier et al. 2012).

If male and female entrepreneurs are important for economic growth and new business creation is also important for economic growth, it is important to identify the factors that facilitates or hinder male and female from starting new business. To organise the discussion of these factors, I start by discussing the male and female differences in self-employment and ambitious start-up entry, Next, I move on to the non-financial resource endowments and starting with human capital before moving on to social capital. Finally, I consider the role of financial resources and wealth. The aim here is to start by linking deprivation to liquidity constrains, using the quality of housing located in various East Midlands neighbourhoods with different levels of socio-economic development as a proxy

for wealth. Then I move on to financial capital, represented by various categories household income.

4.2.1 Gender differences in entrepreneurial choices

A number of studies have examined the question of whether men and women differ in their propensity to engage in entrepreneurial activity (Allen et al. 2008; Hart et al. 2011; Kelley et al. 2011b; Levie and Hart 2010; Reynolds et al. 2004). The literature suggests that differences in male and female entrepreneurship participation may stem from occupational segregation and stratification in the labour market. From these studies, the story and facts about women's rate of engagement in entrepreneurship are presented in plain and unambiguous terms - reflecting occupational segregation and stratification in the labour market - women are less likely than men to engage in any form of entrepreneurial activity. In terms of early-stage entrepreneurial activity (individuals actively trying to start a business and had not yet paid wages or income to owners for more than three months, and those who run a business they owned paying wages/ income for more than three months and no more than forty two months), GEM data and other studies based on this data provide ample evidence which indicates that men are more likely than women to be nascent entrepreneurs. The GEM data (see Allen et al. 2008; Kelley et al. 2011b; Levie and Hart 2010; Marlow et al. 2012) and the Panel Study of Entrepreneurial Dynamics data (Reynolds et al. 2004) provide evidence of a significant and persistent gap in early-stage entrepreneurial activity between men and women and they identified that men are twice more likely to be engaged in nascent entrepreneurial activity. However, these studies are descriptive and do not take into consideration important socio-economic factors that may differ between men and women. Empirical studies based on GEM data that explain persistent gap in nascent entrepreneurial activity between men and women provide mixed results. A number of scholars find that men are more likely to be nascent entrepreneurs than women (Arenius and Minniti 2005; Estrin and Mickiewicz 2011; Koellinger et al. 2008)

and the reasons for these differences are disputed (Langowitz and Minniti 2007; Minniti and Nardone 2007; Minniti 2010). Although attention has been paid to the existence of differences in entrepreneurial behaviour between men and women (Klyver et al. 2013; Saridakis et al. 2013; Verheul et al. 2012), we know less about the factors which influence the entrepreneurial entry decision of male and female prospective entrepreneurs.

One stream of women's entrepreneurship research has demonstrated that most female entrepreneurs view their businesses as being both economic and non-economic in nature (Brush 1992). The main premise of this perspective is that many female entrepreneurs tend to balance economic objectives with non-economic objectives than male entrepreneurs (see a recent review by Sullivan and Meek 2012). Therefore many of their entrepreneurial decisions and outcomes are influenced by factors operating at family level (Aldrich and Cliff 2003), hence many studies have examined whether self employment enables women to achieve the expected work-family balance. Research on the launch decision of nascent entrepreneurs has produced some mixed results regarding empirical differences between male and female entrepreneurs. On the one hand, in terms of the launch decision, a significant number of empirical studies found that women are motivated to start a business in the hope of achieving a balance between work and family obligations (Kepler and Shane 2007; Manolova et al. 2008; Taylor and Newcomer 2005). Kepler and Shane (2007: 28) found a strong association between female self-employment and pursuing economic goals. They indicated that female entrepreneurs score higher "on the scale measuring the motivation to start a business to have more flexibility for personal and family life" (Kepler and Shane 2007: 27). In contrast, male entrepreneurs score higher on the scale measuring the motivation to start a business to make money as more important than spending time with their families. Manolova et al (2008) indicated that women's newly established businesses are associated with a significant number of desired outcomes and tend to perceive that starting a new businesses is associated with status but men focused on self realisation and financial success. Taylor and Newcomer (2005) came to the same

conclusion and argued that female entrepreneurs are motivated to start a business “from the desire to fulfil an old dream, a desire for recognition by others, ... the desire to be independent and have control over one’s life” than male entrepreneurs (p 24). Recent analysis of the GEM data also reveal that women are more likely to start a businesses which pursue both economic and non-economic goals (Hechavarria et al. 2012; Levie and Hart 2011b; Meyskens et al. 2011). Yet, on the other hand, the literature on self-employment highlights many huddles faced by female entrepreneurs such as greater amount of time spent on family related tasks by women than men (Cliff 1998), differences in strategies employed by men and women to achieve a balance between work and family tasks (Jennings et al. 2010) and lack of spousal support (McGowan et al. 2012). Such evidence demonstrate that women struggle to achieve the desired work-family balance (see Kirkwood and Tootell 2008; Shelton 2006).

Using data from British Household Panel Survey, Parker (2009) found that in the UK, only 16 percent of women were full-time employees and 70 percent were part-time self-employed workforce. Others indicated that about half of the self-employed women work part-time - that is, less than 30 hours per week – and about 30 percent of women own small scale home based businesses (Thompson et al. 2009). This evidence support the view that part-time entrepreneurship is seen as a substitute for part-time self-employment primarily because it enables women to play their role in household related tasks (Duberley and Carrigan 2013; Georgellis and Wall 2005). Moreover, recent studies indicate that given the poor returns, small scale home based businesses are less likely provide a satisfactory solution to combining economic activity with family obligations because that undermines the legitimacy of the firm due to its association with the household environment and the competing forces from income generating activities and family obligations hinders firm’s expansion (Fairlie and Robb 2009; Jayawarna et al. 2013). In addition to this, there are several factors which have potential influence on female self-employment. A decline in marriage rates means that family responsibility such as

household and childcare expenses may induce the need for a more secure employment and make uncertain returns from self-employment less attractive than wage from employment (Özcan 2011). Furthermore, a decline in male/female wage gap might have a significant impact on the propensity to engage in entrepreneurial activity since higher wages increases the attraction of paid employment than self-employment (Siegel 2012). Other studies identified that European regulations related to employment benefits such as childcare, maternity, parental and paternity leave reduces the likelihood of women to pursue self-employment (Klyver et al. 2013; Tonoyan et al. 2010). In other words, women's participation in nascent entrepreneurial activity rates depends on the economic returns and non-economic benefits accruing from paid employment and self-employment. However, the discussion above leads to the hypothesis:

Hypothesis 1a: An individual's motivation to be self-employed will differ by gender, such that women are more likely than men to become self-employed.

Previous research on differences in growth among businesses owned by men and women has mainly examined whether male and female entrepreneurs employ different strategic management practices. However, studies on growth ambitions of nascent entrepreneurs have produced mixed results regarding the differences between men and women. Evidence from previous studies indicates that there are clear differences in strategic decisions made by male and female entrepreneurs. Female entrepreneurs tend to have lower levels of growth ambitions and prefer to own smaller firms than male entrepreneurs (Allen et al. 2008; Kelley et al. 2011b; Levie and Hart 2010). Because of this, women are over-presented in the retail and personal service sectors and under-represented in sectors such as business services, extraction and manufacturing (Allen et al. 2008; Carter et al. 2009; Fairlie and Robb 2009; Kelley et al. 2011b; Marlow and McAdam 2013; Wilson and Tagg 2010). Moreover, their businesses are more likely to be home-based (Jayawarna et al. 2013) and less likely to be growth oriented (Fairlie and Robb 2009). However, the

differences in expected future size of the business may stem from the differences between men and women regarding their growth ambitions for their businesses before they even exist, measured in terms of intended venture scale, such as, sales or employment (Bosma and Schutjens 2009a; Cassar 2006, 2007; Coleman and Robb 2012; Hessels et al. 2008a; Levie and Autio 2011; Liao and Welsch 2003). In this context, there is evidence supporting the idea that women, on average, have lower risk of tolerance when making financial decisions than men (Cliff 1998; Langowitz and Minniti 2007; Wagner 2007). In a study of 229 small Canadian business owners, Cliff (1998) found that female entrepreneurs are more likely to set an upper limit on the maximum desirable size of their businesses. Moreover, their upper limits were much smaller than those set by male entrepreneurs. Cliff concluded that women were more cautious when dealing with risky situations associated with fast paced growth and often deliberately implemented less risky strategies resulting in a "slow and steady rate of expansion" (Cliff 1998: 523-24).

In addition, differences in growth ambitions may emerge from differential access to resources, in particular financial capital in the form of debt or equity which is considered to be important in facilitating business growth (Brush et al. 2004; Hart et al. 2011; Manolova et al. 2007; Marlow and Patton 2005). Using the GEM UK data, Hart et al (2011: 23 see Table 2, model 1, stage 1) found that being a female has a negative and significant effect on expected future size of their businesses than their male peers after controlling for a wide range of individual characteristics. A similar result was produced by Estrin and Mickiewicz (2011: 409-11) who found that women are less likely to engage in any form of entrepreneurial activity including self-employment than men. These studies suggest that women are more likely to have lower expected future size of their businesses in terms of employment growth.

A considerable volume of empirical research on growth ambitions using the Panel Study of Entrepreneurial Dynamics data has produced mixed results. In answering the question, are

male and female entrepreneurs really that different? Kepler and Shane (2007) concluded that although there is evidence of differences between men and women in terms of various aspects of entrepreneurial activity and behaviour such as, motivations for engaging in start-up process, the likelihood to start a low risk/lower return business or future expectations which result in differing outcomes, there were no significant difference between male and female entrepreneurs regarding their firm performances. In terms of the launch decision, in examining the effects of opportunity costs on intended venture growth, Cassar (2006) found that in the US, women had lower judgements of desired future revenue than men. In contrast, in their Canadian study using data similar to that of the Panel Study of Entrepreneurial Dynamics, Gasse et al (2004) did not find any statistically significant difference between male and female entrepreneurs in terms of their expressed preferences for uncontrolled growth.

Although these studies were conducted in different countries, with differing objectives, they suggest that there may be an association between expected future size of businesses measured in terms of employment and being a male or female. The findings also suggest that, in terms of launch decision, women take a cautious approach when making judgements about the desired future size of their businesses than men. Drawing these arguments together, at the same time noting their contradictions, lead to the following hypothesis:

Hypothesis 1b: The positive effect of gender on the decision to become ambitious entrepreneurs will differ by gender, such that men are more likely than women to become ambitious entrepreneurs.

4.2.2 Human capital, gender and entrepreneurial entry

In the theoretical literature on economics, education and prior experience are considered to be important components of an entrepreneur's human capital which indicates the stocks of knowledge, skills and capabilities possessed by an individual (Becker 1964). The human capital theory suggests that higher levels of education and experience should increase the belief that effort put into entrepreneurial activity will not be wasted, but will lead to desired outcomes. Moreover, this is consistent with Wiklund and Shepherd (2003) who found that business growth increases with growth aspiration at a faster pace for nascent entrepreneurs with either higher levels of education or prior experience.

Following prior entrepreneurship studies, I distinguish between general and domain specific human capital (Becker 1964; Gimeno et al. 1997; Martin et al. 2012; Unger et al. 2011). However the distinction between general and domain specific human capital is context specific and may differ from prior studies in part due to the variety of meaning attributed to the word entrepreneurship. In the current study's context, general human capital is defined as the general knowledge acquired by an individual through formal education and is not directly related to new firm formation. Formal education is a component of general human capital that does not only enable individuals to acquire knowledge, but it enhances the abilities of entrepreneurs to analyse information, the development of skills required to acquire new knowledge independently and to use the accumulated knowledge to solves complex problems (Cooper et al. 1994; Davidsson and Honig 2003). In addition, entrepreneurs with a higher level of education have a stronger general knowledge base which is more likely to provide them with superior cognitive abilities that increases their productivity and efficiency in a wide range of start-up activities (Dencker et al. 2009; Gupta and York 2008). Moreover, the accumulated knowledge can help in acquiring other resources such as physical capital (Brush et al. 2001a) or compensate for lack of financial resources (Evans and Leighton 1989b) and facilitates access to wider range of other resources.

However, empirical studies have produced mixed results and there is no clear evidence found yet of the relationship between education and the probability of starting a new firm (Blanchflower 2004; Davidsson and Honig 2003). While conventional wisdom indicates that high levels of education provides significant benefits to nascent entrepreneurs (see Delmar and Davidsson 2000), evidence suggests that many nations with higher national levels education have lower rates of self-employment (Uhlaner and Thurik 2007). Using a sample of 30 developed and developing OECD countries, Blanchflower (2004) found that the decision to become self-employed or start a business, for both women and men, positively correlated with education in the United States but reported a negative correlation in Europe. In examining whether being a men or women had a direct or indirect effect on growth ambitions, i.e. interaction of gender with human capital, Manolova et al (2007) found that, in Bulgaria, higher levels of education (business and technological degree) had a positive effect on growth aspirations of women entrepreneurs.

However, the acquisition of knowledge is mainly considered to be entirely under individual control, there are some social barriers which may limit women from acquiring education. There is evidence which shows that men and women entrepreneurs differ in terms of education and experience (Brush 1992). Although women and men might have similar levels of education, the content of their education differs (Birley et al. 1987). Females are more likely to have arts education, male are more likely to select in science, engineering or business subjects (Brush 1992) which equips them with the knowledge and skills preferred by external investors. Indeed, individuals attempt to receive compensation for their investment in human capital such as time and money spent on education (Becker 1964). As such, individuals who are highly educated may not choose to become entrepreneurs if entrepreneurship leads to reduced income compared to the income from employment (Evans and Leighton 1989b). Yet, once those with high quality of human capital engage in entrepreneurial activity, they are more likely to succeed (Cassar 2006). The argument

presented here is that, although higher levels of education provides women with access to better paying occupations which increases the opportunity cost of taking care of the family tasks than being in paid employment, therefore, lower levels of education should increase women's propensity to engage in entrepreneurial activity. Depending on the extent to which lower levels of education adversely affect entrepreneurial activity, evidence suggest that there is a positive relationship between start-up and lower levels of education (Cetindamar et al. 2012; Kim et al. 2006). Others found a positive relationship between the women's start-up rate and the level of their level education (BarNir 2012; Kovalainen et al. 2002). The above discussion leads to the following hypothesis:

Hypothesis 2a: Due to low opportunity cost, women with lower levels of education will have a significantly higher propensity to become self-employed. However, due to low human capital endowment, women with lower levels of education will be less likely to become ambitious entrepreneurs

While formal education is more likely to provide entrepreneurs with abstract cognitive skills, domain specific human capital plays an important role by providing insights regarding entrepreneurial activities and may provide prospective entrepreneurs with specific knowledge and skills (Cohen and Levinthal 1990). The human capital theory assumes that individuals are more likely to succeed when they engage in tasks that are related to their prior knowledge and experience (Becker 1964). In this study, domain specific human capital is defined as knowledge or skills depth in an economic or social activity that may facilitate the generation and development of new business ideas and the application of that entrepreneurial specific knowledge and skills in starting a new firm (see Carter et al. 2003a; Cliff et al. 2006; Gatewood et al. 2009). In addition, domain specific human capital is also associated with increased business contacts and more diverse social networks which may facilitate the creation of new firms. It has been shown that domain specific human capital, i.e. knowledge and skills related to entrepreneurial activity,

positively correlated with the discovery and successful exploitation of new business opportunities (Davidsson and Honig 2003). They also found that the effect of general human capital was less consistent and weaker than that of domain specific human capital. Hence, an entrepreneur's domain specific knowledge and skills may be more valuable than his/her general knowledge and skills.

Extant studies indicate that male and female differences in the labour market such as wage differentials, occupational segregation, or stereotypical bias are more likely to be the main causes of the division of labour resulting in the emergence of different preferences and distinct career trajectories for women and men (Greene et al. 2013; Koeber and Wright 2006; Marlow and McAdam 2013). Such differences may be partly explained by the women's life-course events and career experiences which clearly differ from that of their male counterparts and as such, shapes their relationship with self-employment, business growth ambitions and employment (Davis and Shaver 2012; Koeber and Wright 2006). It is implicitly assumed that women were less likely to gain domain specific human capital through work experience since they tend to experience more career interruptions because of childbirth, childcare or abandonment of their careers when their husbands relocate. Therefore, they tend to select in occupations that accommodate or are more tolerant to such interruptions (Duberley and Carrigan 2013; Jayawarna et al. 2013; Saridakis et al. 2013). Whereas, men tend to experience less career interruptions and tend to select into jobs that offer opportunities for long-term employment. Because of the differences in the life experiences of men and women, I expect that men are more likely to acquire more specific human capital due to long-term employment in a particular industry, whereas by experiencing more career interruptions, women are more likely to acquire more general human capital associated with short-term employment.

In addition, the literature indicates that specific business education and training may not only provide entrepreneurs with problem solving skills but enhances entrepreneurs'

knowledge about financial resources better than entrepreneurs with higher non-business education or entrepreneurs with lower levels of education (Dimov 2010; Seghers et al. 2012). It is assumed that direct experience with capital acquisition provided entrepreneurs with deeper explicit and tacit knowledge of finance options and the development of different resource acquisition strategies considered by nascent entrepreneurs (Seghers et al. 2012; Shepherd et al. 2000; Van Auken 2005). Hence, entrepreneurs with specific business education and experience tend to spend less time seeking access, gathering or analysing information since they are already familiar with the institutions (Forbes 2005). Relating this to growth ambitions and ambitious start-ups, domain specific human capital can be acquired through active involvement in growth oriented industries such as engineering, science or manufacturing. However, due to networking difficulties faced by women (Ruef et al. 2003), the differing life and career experiences between men and women (Davis and Shaver 2012; Koeber and Wright 2006), I expect that women will have difficulties in accessing and leveraging their specific human capital. It is this form of capital which is associated with specific training and experience within an industry that heavily depends on access to the broader labour markets which limits women's ability to acquire and utilise it for ambitious start-ups. In contrast, this form of capital will be available to most men and is more likely to facilitate them in starting growth oriented firms. This leads to the following hypothesis:

Hypothesis 2b: Due to low quality human capital endowment, the positive effect of specific human capital on decision to become self-employed or ambitious entrepreneurs will be much weaker for women than for men.

4.2.3 Social capital gender and entrepreneurial entry

The process of starting a new business involves complex decisions, and researchers from various disciplines have focused on a wide range of factors that may facilitate or hinders

an individual's likelihood to start a new business (Anderson 2008; Audia et al. 2006; Audretsch and Keilbach 2004b; Batjargal et al. 2009; Carroll and Hannan 2000; Granovetter 1985; Minniti 2005; Stinchcombe 1965). Several studies combining the entrepreneurship and organisational ecology perspectives have indicated the importance of geographical factors in shaping an individual's decision to start a business and creation of new businesses (Bird and Wennberg 2013; Boone et al. 2013; Miller et al. 2011). These two streams of literature have one thing in common – that they both agree on fact that the environment exerts a significant influence on an individual's decision which has an impact on the entry choice and how businesses emerge or expand (Minniti 2004; Stinchcombe 1965). This theoretical framework explains how potential entrepreneurs' opportunities and constraints are shaped by the environment (Stinchcombe 1965). Stinchcombe defined the social structure which forms the environment as "any variables which are stable characteristics of the society outside the organisation[2]" (1965: 142). In other words, the environment includes the social and economic conditions in which the potential entrepreneurs find themselves. Hence the literature on organisational ecology emphasises that new firm creation process is heavily influenced by the environmental forces as well as constraints in place which includes economic resources and socio-cognitive factors (Carroll and Hannan 2000; Minniti 2005). It is the availability of these resources in the region which determines the start-up rate and result in increasing or reducing the number of firms in a region (Aldrich and Ruef 2006). From this perspective, it is assumed that the regional start-up rate should increase if the region has a high density of similar[3] firms (Boone et al. 2013). Furthermore, an increasing density of small firms in the region reflects a higher legitimacy for entrepreneurship as a career and the development of networks (Aldrich and Kim 2007). In addition, entrepreneurs are embedded in networks which increases the probability to access relevant information which enables them to identify

[2] Organisation refers to the stable social relations deliberately formed with the aim of continuously accomplishing some specific objectives such as a, excluding groups which perform multiple functions such as ethnic groups or families.
[3] In this study "similarity" refers either to male or the female owned small businesses.

potential entrepreneurial opportunities (Hoang and Antoncic 2003; Jack et al. 2010; Sørensen and Sorenson 2003).

Parallel to the above, the concept of embeddedness coined by Polanyi (1957) was further developed by Granovetter (1985) and explains how economic actions of individuals and businesses are shaped by the nature, depth of relationships and ties into the environment that may promote or impede their economic activities (also see Casson and Della Giusta 2007; Karlsson and Dahlberg 2003). Granovetter (1985) also argued that social network ties are activated when they are needed and they are not fixed. This means that networks can be seen as the sum of dynamic relationships, which are always changing and are process driven (Chell and Baines 2000; Jack and Anderson 2002). Whereas, in the entrepreneurship field, social embeddedness has been defined as an entrepreneur's position within his/her social network which determines the quantity and quality of information and resources he/she can access for the entrepreneurial success (Jack and Anderson 2002). This suggests that new business creation is affect by relationships and social ties that are prevalent in the neighbourhood, and reflects the differences in the resources allocated to prospective entrepreneurs within the community (Audia et al. 2006; Hindle 2010). Thus, personnel networks enable potential entrepreneurs to learn and obtain information about new business opportunities, customers or suppliers (Bird and Wennberg 2013; Jack 2010; Miller et al. 2009) which are likely to have an impact on their entrepreneurial growth ambitions. Moreover, relying on networks may be seen as a useful strategy to overcome some of the constraints to growth such as accessing to financial resources, dealing with government agencies and regulation obstacles. However, the composition of an individuals' networks determines the variety of resources and information which an entrepreneur can obtain (Bird and Wennberg 2013; Robb and Watson 2012; Saridakis et al. 2013; Watson 2012; Zhang 2010). Hence the ongoing debate in the literature on network structure is centred on attempting to understand whether strong or weak ties provide more benefits to entrepreneurs (Burt 2005, 2009;

Granovetter 1973; Wang and Altinay 2012). Both come with different benefits and may influence male and female decision to become self-employed or an ambitious entrepreneur in distinct ways. On the one hand, female entrepreneurs tend to pursue non-economic objectives than male entrepreneurs (Aldrich and Cliff 2003), they often seek to establish strong ties (especially family based) and durable relationships with stakeholders in their neighbourhood who provide them with access to crucial resources such as emotional and motivational support (Berrone et al. 2010; Brush et al. 2001a; Chua et al. 2008; Sullivan and Meek 2012). Their embeddedness might have direct effect on the regional patterns of new business creation beyond shaping the prospective entrepreneurs goals and strategies which may make entrepreneurs less dependent on more valuable knowledge and information which may be found when reaching out beyond the family circles. On the other hand, male entrepreneurs are motivated to start a business in the hope of making money tend to deal more with distant relationships (weak ties) (see Hanlon and Saunders 2007) and may not be directly influenced by the social context of their families (Miller et al. 2011). These entrepreneurs tend to prioritise economic or market oriented objectives which satisfy various economic oriented stakeholders who may provides them with crucial resources such as business information, expertise or financial resources (Seghers et al. 2012) which enable them to achieve the desired business growth (Miller et al. 2009). Thus, the above discussion implies that female and male entrepreneurs are more likely to face distinct social context which result in differences in start-up patterns at the neighbourhood level.

Moreover, several studies have shown that communities with a high population of small businesses will generally experience a persistent high rate of start-ups for a long time (Andersson and Koster 2011; Audia et al. 2006; Bosma and Schutjens 2009b; Fritsch and Wyrwich 2013; Parker 2009). Such evidence highlights the spatial nature of the social structure of economic activities as theorised by the density dependence model in the organisational ecology literature. From this perspective, it is assumed that the existing

number of similar firms in the community increases the legitimacy of the type of firms and the emergence of networks (Aldrich and Kim 2007; Ruef 2000). In fact, the density of similar firms may be considered as a network externality which has been defined by Minniti (2005) as the local level of entrepreneurial activity that may increase or reduce the attractiveness of starting a new firm. However, the impact of this externality on entrepreneurial entry decision will depend on the strength of social inter-dependence between the entrepreneurs (Aldrich and Kim 2007; Light and Dana 2013; Minniti 2005). While indeed most women are more likely to start businesses which pursue both economic and non-economic goals (Hechavarria et al. 2012; Levie and Hart 2011b; Meyskens et al. 2011) suggest that they are more likely to be durable community stakeholders who can be regarded as part of their local economic and social structure which, at the neighbourhood level, leads to higher levels of inter-dependence between entrepreneurs.

In extending the discussion in the literature which suggests that a high density of small female and male owned firms in the community increases the number of female start-ups and male start-ups in distinct ways by stressing several points. First, indeed a high number of similar firms in a community facilitate the emergence of social networks between the existing firms. These networks play a major role in providing both potential male and female entrepreneurs with valuable knowledge and information which enhances the progress of new firm formation by reducing the ambiguity they might face during the resource acquisition period (De Carolis et al. 2009; Minniti 2005; Ozgen and Baron 2007). Second, the presence of a high number of either male or female owned businesses in the community enhances the legitimacy of the type of businesses. Although legitimacy facilitates access to a wide range of resources, the literature posit that entrepreneurs initially depend on their strong tie networks during the venture creation period (Aldrich and Kim 2007; Anderson et al. 2005; Hanlon and Saunders 2007; Light and Dana 2013). These networks are formed by close personal contacts, particularly family members or friends who provide intangible resources such as emotional support to prospective

entrepreneurs (Audia et al. 2006; Brush et al. 2001a). These personal contacts also act as informal investors who provide initial financial capital for venture creation not only on economic grounds but as personal support to the prospective entrepreneur (Bygrave and Reynolds 2006). Therefore, both male and female nascent entrepreneurs with good access to strong ties networks should find it easier to access resources required during the start-up period which leads to the suggestion that legitimacy from a higher number of established small male or female owned firms in the community plays an important role in the new firm creation process. In contrast, growth ambitions are enhanced by a wider access to resources that are associated with ethnic heterogeneity. It is only during the expansion period when entrepreneurs need to reach out for competences that may be available only in wider diversified communities when they tend to deal more with weak tie networks composed of distant business contacts that provide a wide range tangible resources, professional knowledge and information (Chua et al. 2008; Seghers et al. 2012; Zain and Ng 2006). The richness in diversity offered by weak tie networks enables nascent entrepreneurs to mobilise resources on favourable terms than what they might get through the market resulting in achieving the desired growth ambitions much easier. However, instead of creating businesses aiming to make profit, women perceive their businesses as cooperative network of relationships were business relationship are integrated with personal, family and societal obligations (Ruef et al. 2003) which implies that women pursue entrepreneurship not to grow but achieve a balance between economic and non-economic obligations (Kepler and Shane 2007; Manolova et al. 2008; Sullivan and Meek 2012; Taylor and Newcomer 2005). Finally, in this study I posit that if geographical proximity to small businesses matters, the male and female entrepreneurial entry decision may be influenced by different role models depending on the degree to which they identify themselves with that particular type of businesses. Indeed the literature indicates that geographical proximity to small business play a crucial role in exposing prospective entrepreneurs to role models, giving them the possibility to observe and likeliness of imitating the role models' entrepreneurial behaviour (Seghers et al. 2012). Therefore,

women's entrepreneurial entry choices are more likely to identify with other female businesses because they share similar norms and comprise a similar group of founders of small firms. In contrast, male nascent entrepreneurs are motivated to start a business to pursue economic objectives, i.e. making profit, are more likely to identify themselves other male established small businesses in the community. In this study, I argue that although women and men start-ups patterns differ and constitute distinct type of businesses, the number of male and female in a community who are self employed should influence both men and women to engage in self-employment is a similar way. However, the existing number of ambitious small businesses, i.e. those that employ others, in the community should be specifically important for emergence of male ambitious start-ups. Taken together, the following hypotheses are proposed:

Hypothesis 3a: The positive effect of the share of business owners in the neighbourhood on an individual's decision to become self-employed will be much stronger for women than for men.

Hypothesis 3b: The positive effect of the share of business owners in the neighbourhood on an individual's decision to become an ambitious entrepreneur will be much stronger for men than for women.

4.2.4 Wealth, male and female entrepreneurship

The extant literature focuses on the association between financial resources and new firm formation, growth or survival. In this study, financial resources are divided into two categories; household income and household wealth. Given that it has been recognised that debt is one of the major source of financing for start-ups (Robb and Robinson 2014) and household income or household wealth can be used as collateral, both forms of financial resources might have an influence on an individual's propensity to become an

entrepreneur. Since the decision to start a new firm may involve jointly owned family assets to raise sufficient start-up capital or other household members to make financial contributions makes it more appropriate to conceptualise financial resources at the household level.

Although there has been an ongoing debate about the various factors that negatively affect entrepreneurial activity and the most cited barrier to new firm creation is the inability of prospective entrepreneurs to acquire additional financial capital required for starting a new firm. This suggests that when the credit availability is limited and start-up requirements are high, lower wealth or income households are constrained from starting new firms. A large number of studies found a positive relationship between household assets and the probability of becoming an entrepreneur and interpreted this as evidence of the existence of liquidity constrains (Blanchflower and Oswald 1998; Evans and Jovanovic 1989; Evans and Leighton 1989a; Fairlie and Krashinsky 2012; Holtz-Eakin et al. 1994a; Wang et al. 2012). The theory suggests that only wealthier individuals are more likely to become entrepreneurs in sectors or industries where the initial capital requirements are relatively high. Thus, wealthier individuals can invest more in a new firm since they are able to borrow from financial institutions using their assets as collateral to avoid borrowing constraints (Coco 1999).

However, evidence from subsequent research challenged this view (see Hurst and Lusardi 2004). Using micro-level data from the Panel of Study on Income Dynamic, they found that the relationship between and entry into market with high start-up financial capital requirements was only positive for the wealthiest households and once this category was excluded from the sample, there was no statistical significant relationship between wealth and entrepreneurial choice. Since households who lived in prosperous regions where house prices appreciated strongly were least likely to have their entrepreneurial ambitions adversely affected by borrowing constraints, Hurst and Lusardi (2004) concluded that the

relationship had nothing to do with borrowing constraints. Given that when they excluded those in the high end of the wealth distribution from the sample, they found a no statistical significant relationship between wealth and entrepreneurial choice for most of the wealth distribution categories, their interpretation was that wealthier individuals had a stronger preference for becoming entrepreneurs than the less wealthy because it gave them the flexibility to pursue both economic and non-economic objectives.

I extend these arguments by proposing a more novelty possibility that although wealth may be important, other resources, such as human and social capital, can be used as alternative means of access to external resources (Schwienbacher 2007). Moreover, it has been recognised that the financial capital required to start a business is low (Hurst and Lusardi 2004; Williams and Williams 2011). Furthermore, in most advanced economies with well developed financial systems, it is less likely that financial constraints will play a crucial role in determining entrepreneurial entry. Although previous studies suggests that banks impose lending procedures that disadvantaged female entrepreneurs (Alesina et al. 2013; Bellucci et al. 2010; Carter et al. 2007; Fletschner 2009), such evidence alone does not prove that the loan application process is biased. However, conventional measures used by banks to determine an individual's creditworthiness were based on masculine norms such as work or business experience, career history (Carter and Shaw 2006) or personal savings (Marlow and Patton 2005) provide a partial explanation of the difference in borrowing constraints. Hence evidence provided by extant research remains inconclusive (Parker 2009). Furthermore, lending procedures and criteria employed by banks to process male and female applications are the same, resulting in no significant differences in loan denial rates between men and women (Blanchflower et al. 2003; Carter et al. 2007). Accordingly, with housing acting as a proxy for wealth accumulation, it is assumed that it will have an equal effect in influencing or limiting men and women living in communities faced with different levels of social and economic development into engaging

in self-employment or ambitious start-ups. For these reasons, the following hypothesis is proposed:

Hypothesis 4: There is no difference between men and women in the positive effect of housing on the likelihood of becoming self-employed or ambitious entrepreneurs.

4.2.5 Financial capital, male and female entrepreneurship

A persistent theme within the extant literature is that individuals weigh their engagement in entrepreneurial activity in terms of opportunity costs relating to the possibility of reducing their current level of income from paid employment (Blanchflower and Oswald 1998; Carrasco 1999; Kim et al. 2006). The factors that influence their choice can be considered as the rules of the game since the decision to become nascent entrepreneurs is only taken after individuals assess the likelihood of generating high levels of income from their new businesses in comparison to their present levels of income and the likelihood of receiving increases in their future incomes from employment. Hence individuals with lower levels of household income may find the opportunity cost to be very low such that they may lose little by engaging in entrepreneurial activity which may fail to provide the projected income. In contrast, some individuals in employment who are on higher income brackets may benefit from economic rents generated from their specific human capital. Therefore individuals on higher income brackets may find the loss of their current and projected income from their present employment greater than the projected income from new businesses. As a result they may find it less appealing to engage in entrepreneurial activity which commands a notably insecure income and uncertain future (Carter 2011).

Evidence supporting the theoretical assumptions suggests that the majority of entrepreneurs are reluctant to borrow money from formal institutions but prioritise the use of personal and informal sources of investments in order to minimise financial liabilities.

Although the literature indicates that the majority of entrepreneurs start new businesses with lower levels of income (Carter et al. 2007; Williams and Williams 2011), Hart et al (2011) argued that women as group invested lower levels of start-up capital than male entrepreneurs. Similarly, Fairlie and Robb (2009) showed that US female entrepreneurs had lower levels of financial and human capital and concluded that this is why their businesses had a slower growth rate. Carter et al (2007) argued that funding strategies pursued by women resulted in the undercapitalisation of their businesses during their life cycle and have a negative effect on survival and growth. Furthermore, it is assumed that female entrepreneurs are more cautious and have a higher risk aversion than male entrepreneurs when considering funding options (Coleman and Robb 2012; Kepler and Shane 2007). However, these assumptions are problematic given that there is a consensus within the emerging literature that the women's work and life course events significantly differs from that of men and that play a major role in shaping their relationship with entrepreneurship and employment (Davis and Shaver 2012; Jayawarna et al. 2013; McGowan et al. 2012). Therefore, women's entrepreneurial behaviour, i.e. lower propensity to engage in entrepreneurial activity or business growth, should not be seen as a reflection of an individual's deficit but a response to tension between economic activity and family roles (Marlow and McAdam 2013). Instead explanations for the differences in funding are more likely to reflect the women's preferences to begin small (Marlow and Swail 2014), home based businesses, part time (Gurley-Calvez et al. 2009; Jayawarna et al. 2013) in lower cost and lower growth sectors (Marlow and McAdam 2013; Wilson and Tagg 2010). Although some may believe that these factors may reflect that more women are risk averse than men, I posit that this reflect situational constraints which shapes their demands for start-up financial resources.

Verheul and Thurik's (2001) study which examined the impact of a number of factors on Dutch female and male entrepreneurship found that women had smaller amounts of start-up capital than men but there were no significant differences on the type of capital. But on

average, the proportion of equity in female owned businesses was the same as their male counterparts. In another study using the GEM data for 29 countries, the same author found that female and male entrepreneurial activity rates were influenced by the same factors and in the same directions (Verheul et al. 2006). With such evidence, I argue that examining entrepreneurial entry enables us to distinguish the impact of different level of household income on the propensity of both males and females to become self employed or ambitious entrepreneurs. I posit that individuals with lower levels of household income are more likely to become self employed. In contrast, individuals with higher level of household income are more likely to become ambitious entrepreneurs. As such, the following hypothesis is proposed:

Hypothesis 5: Due to lower opportunity cost women and men with lower levels of household income are more likely to become self employed than those with higher levels of household income. However, due to financial constraints men and women with lower levels of household income are less likely to become ambitious entrepreneurs than those with higher levels of household income.

4.3 METHODOLOGY

In a study which used a large sample drawn from 30 developed and developing countries, Blanchflower (2004) found that the decision to become self employed or start a business correlated with a number of factors such as household income, education, work experiences and age, for both men and women. Consistent with this, empirical studies have shown that entrepreneurial attributes which are more likely to have a positive impact on the growth of new firms are business skills, information and motivation (Barkham et al. 2012; Brush and Hisrich 1991; Kolvereid 1992). But most of the empirical support came from studies that examined individuals who are already in businesses. Therefore, many of these studies are retrospective; as such they suffer from the weakness of hindsight and

positive selection biases (see Delmar and Davidsson 2000; Kim et al. 2006). This study avoids these weaknesses by using a large sample of nascent entrepreneurs who are actively involved in the process of starting a new firm.

For the empirical analysis, I use the combined GEM East Midlands dataset covering the period 2006 to 2009 and the English Index of Multiple Deprivation (2007) release. The dataset provided information at both the individual level and the business level. The GEM data was collected using a telephone random dialling technique and is stratified by region of the working age (16 to 64 years) population which reduces selection bias (Levie 2007). The East Midlands sample size varied from 1,786 to 2,255 between the 2006 and 2009 and the final sample comprised of 8,347 observations of which 424 are nascent entrepreneurs. The interest is on individual entrepreneurship, in particular the differences in the male and female entrepreneurial entry. In this study entrepreneurial entry is viewed as engagement in new start-up activity which refers to a concrete behaviour and the individuals involved are often referred to as nascent entrepreneurs. Following the standard GEM definition, nascent entrepreneurs are individuals between the working ages of 18 to 64 years who have taken some action towards creating a new firm in the past year and expect to own at least a share of the new business and must not have paid any salaries and wages for more than three months (Reynolds et al. 2005). Whereas, newly established entrepreneurs are those individuals who own or manage a business that have paid wages and salaries for a period not exceeding forty two months.

This data was used to generate not only rates of individuals in different modes of entrepreneurial entry but also proxies of transition into the start-up process among men and women living in communities with similar levels of deprivation. Accordingly, the depended variable includes (1) individuals with no intentions of engaging in any form of entrepreneurial activity (passive) and (2) individuals who are self-employed. As for the expected future size of the business, (3) ambitious entrepreneurs, the proxy concerns

individuals who at the time of entry aspire to create one or more jobs excluding the owners over a period of five years and entrepreneurs who at the time of entry employed others. Following that, I model the propensity to engage in entrepreneurial activity, that is, self-employment and growth ambitions as a function of the quality of variables related to our hypotheses: general human capital (H2a) specific human capital (H2b), the average number of existing established business owners in the neighbourhood (H3), wealth (H4) and household income (H5), while gender (H1) remain as the main individual level predictors in the specifications.

Although the assumption is that human capital (Becker 1964) facilitates in the identification of a range of viable new business opportunities and increases the likelihood of starting a new firm, it also increases the opportunity cost of entrepreneurship against other employment options (Evans and Jovanovic 1989). Several scholars identified a significant positive relationship between human capital and entrepreneurship (Davidsson and Honig 2003; Delmar and Davidsson 2000; Robinson and Sexton 1994). This was supported by Brush (2006) who confirmed that these findings hold for both male and female entrepreneurs. Therefore, I include dummies for categories of education and knowledge and skills, as proxies for general and specific human capital respectiviely. In addition, it has been recognised that individuals with higher levels of financial resources find it easier to leverage their funds which play a crucial role during the start-up period and growth of business to the desired level. Evidence suggest that the majority of entrepreneurs start businesses with lower levels of financial capital (Carter et al. 2007; Fairlie and Robb 2009; Mickiewicz et al. forthcoming; Nyakudya et al. 2013; Williams and Williams 2011). Therefore, in this study, I include household income. Finally, an individual's decision to engage in entrepreneurial activity can be shaped by the local environment and this might have a significant influence on the entry choice and how businesses emerge or expand (Stinchcombe 1965). Evidence indicates that there is a positive relationship between the local environment and start-ups (Wennekers et al. 2005). The local community may help

potential entrepreneurs by providing them with information which reduces the uncertainty and ambiguities which results in lowering down the start-up cost (Minniti 2005; Seghers et al. 2012). Therefore, the average number of existing business owners in the neighbourhood is included in the specifications. Control variables employed in this study reflect those of prior literature and include; age, employment status, knowing other entrepreneurs in the past two years, business angels and migration status (Evans and Leighton 1989a; Kim et al. 2006; Levesque and Minniti 2006; Nanda and Sørensen 2010).

In order to assess the effect of an individual's accumulated assets on entrepreneurship, it is important to use a variable that accurately capture the value of the assets. The challenge is making a decision on whether to use income or other forms of wealth since both come with their own set of advantages and disadvantages. The problem that arises here results from the fact that individuals are unable to quantify values of their assets accurately and the values are more likely to vary between individuals. At least a recall of income that flows on a regular basis, such as that from work or social benefits, is less problematic since individuals always have information. However, owners of assets may not always have a ready valuation of their property all the time. This leads to potential sources of measurement error that might have serious consequences on the determination of the value of an individual's wealth (see Deaton 1997; Hurst et al. 2012; Williams and Nadin 2012 for detailed discussion about potential data problems arisisng from using household surveys). Given the problems associated with the use of household surveys to measure an individual's income or wealth, employing administrative data would be the best alternative.

The approach taken in this chapter is to use an indirect measure of wealth that is closely related to an individual's financial position and, is widely accessible and can be observed by the general public. Therefore, an individual's residential address meets these requirements since the data is easier to obtain and has a high degree of accuracy. Prior

studies have used housing as an explanatory variable when investigating the role of wealth on transition into entrepreneurship (Adelino et al. 2013; Black et al. 1996; Hurst and Lusardi 2004; Schmalz et al. 2013). In addition, Frankish et al (2014) showed that in the UK, there is a link between individual income level and housing and households with higher levels of income are more likely to spend more money on housing. Such evidence suggests that value can be placed on an address and there is merit in linking residential property when assessing the financial position of individuals living in the house. Similar inferences can be made even when the property is being rented since there is a close relationship between the value of property and rental charges. It is not disputed that there is a wide range of idiosyncratic factors associated with residential addresses (see Cheshire 2009; Lee and Cowling 2013), these studies indicate that an individual's net worthy, that is, personal income influences location and housing choices. Therefore housing can be viewed as the least problematic proxy for assessing the role of wealth on entrepreneurial entry.

This study uses the UK official measure of deprivation, the Index of Multiple Deprivation (IMD) composed of seven domains; income, employment, health, housing, education, crime and environment, and its component indicators for 2,732 Lower Super Output Areas (LSOA) defined as communities with an average population of 1,500 people (DCLG 2010). To link residential addresses to IMD, I used postcodes in the GEM database, assigning each postcode a mean deprivation score which is based on the average deprivation score of postcodes within the LSOA using the Geo-Convert facility. Instead of using the IMD scores assigned to postcodes, I grouped the scores into five equal groups according to their IMD score using the quintile facility in Stata. In this study I define the most deprived areas as those located in the top twenty percent of all the LSOAs. In addition to this, the IMD database also has an indicator representing urban versus rural areas at a LSOA level which I employed in the analysis as one of the control variables. Table 4.1 below provides the description of all the variables used in the analysis.

To test the hypotheses, I begin by focusing on the interactive effects of being a female and human capital. In particular, by considering the interaction between being a female self-employed or ambitious entrepreneur and formal education, knowledge and skills, and share of business owners in the neighbourhood in the first version of the estimating models. I did not include all explanatory variables in the first model because of concerns with endogeneity issues. Therefore, household income and wealth were included in the second version of the models. However, in this model, I did not include the gender variable. Instead I split the sample into two; that is, one specification for female entrepreneurs and the other for male entrepreneurs due to concerns of gender bias.

4.4 ESTIMATION STRATEGY

In this chapter, the multinomial logit estimator (MNL) is applied to predict the differences in the likelihood that male and female potential entrepreneurs choose to either become self employed or ambitious entrepreneurs given their human, social, financial capital and wealth. The MNL extends the principles of linear models and give a better treatment of the categorical dependent variable that come with a range of outcomes. The model allows for study of a mixture of categorical and continuous independent variable explaining a set of outcomes forming the categorical dependent variable by estimating a separate equation for each outcome comparing each with the benchmark; which in this case is passive, that is, individuals who are not actively involved in any start up activity (Long and Freese 2003). I used the maximum likelihood estimations to calculate the logit coefficients (Gelman and Hill 2006) and then exponentiated them to obtain odd ratios in order to facilitate interpretation. In this chapter, I report the multinomial relative risk ratios (RRR) for each mode of entrepreneurial entry. When making inferences, 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 independent 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 independent variable increases.

The modelling strategy used in this study is as follows. I estimated all the models with three options (a) passive – which is the benchmark or reference category, (b) self-employed and (c) ambitious entrepreneurs. When I included all the explanatory and control variables listed in Table 4.1 I could not reject the model assumptions as valid on the basis of Small-Hsiso tests of Independence of Irrelevant Alternatives which came out as insignificant between the set of outcomes due to endogeneity problems created by some of the variables. Precisely, household income and housing had an effect on all outcome variables. In addition, I could not include business angels as one of the control variable because of circularity problems. Therefore I had to drop these variables from the model. Furthermore, I had to running a series of Wald tests to check for differences in coefficients between the set of outcomes. All these came out a significant, indicating that there was no need of combining any of the outcomes variables. This is the first of set of models presented in Table 4.1 below.

In the second model, the inclusion of all the explanatory and control variables listed in Table 4.1 above created some simultaneity problems with some of the variables. In particular LSOA that is, urban areas, could no longer be included as a control variables due to endogeneity problems. As such, the variable was dropped from the model. I also verified that that model holds by performing Small-Hsiso tests of Independence of Irrelevant Alternatives and results which all came as significant indicate that there was no ground for combining any of the outcome categories. The second model is based on the same set of outcome categories as in the first model and is presented in Table 4.2 and 4.3 in the results section.

In addition, some measure for the explanatory power and diagnostics of the models are presented in Table 4.1, 4.2 and 4.3 below and discussed in the following section. I also tested the strength of the relationship among the variables used in these models using the Collin package in Stata to check for multicollinearity. The main reason for performing this test is that multicollinearity cause inflated standard errors and sensitivity of coefficients as a result of small changes to the set of explanatory variables. Tolerance and variance inflation factor (VIF) are the common cited measures of multicollinearity. The results show that the minimum tolerance is 0.2452 and a maximum VIF of 2.05 which indicates that the relationship is weak. The results support those of the spearman rho correlation which also indicate that the relationship among the explanatory variables is very weak. Therefore I can conclude that there is no cause for concern since there is no variable with a tolerance less than 0.1 or a VIF of 10 or greater. Correlation coefficients for the variables used in the regressions are presented in Figure 4.2 below. With the highest coefficient of 0.34, problems for further analysis are not anticipated since the coefficient values are relatively low.

Figure 4.1: Variable description

Variable	Description	Percentage	
Dependent variable			
Entrepreneurial entry	Passive, no business ownership intention Self-employed Ambitious (start-up)	94.92 3.41 1.67	
Explanatory Variables			
Gender	Male Female	40.65 59.35	
Female X Education	 Female X No formal education Female X GCSE Female X A level Female X Vocational and others Female X Bachelor Female X Masters & doctorate	*Mean* *0.095* *0.258* *0.194* *0.123* *0.195* *0.070*	*SD* *0.293* *0.438* *0.396* *0.329* *0.396* *0.255*
Female X Share of business owners	Female X Average of Owners-managers of businesses (average rate in LSOA)	*(Mean 0 .047 SD 0.119)*	
Female X Share of Knowledge and skills	Female X Share of Perceived skills (average rate in LSOA)	*(Mean 0.145 SD 0 .352)*	
Housing	Quintile 1 (20% of lowest value housing) Quintile 2 Quintile 3 Quintile 4 Quintile 5	11.82 17.16 20.62 22.19 28.21	
Income (head of household)	up to £11500 £11501-£20000 £20001-£50000 over £50000 not stated	22.97 21.95 22.93 16.11 16.04	
Control Variables			
Age of respondent	18 to 24 25 to 34 35 to 44 45 to 55 55 to 64	6.18 15.33 25.64 26.16 26.69	
In employment	Not in employment The respondent is employed	25.93 74.07	
Business angel (in past 3 years)	No Yes	98.81 1.89	
Knowing other entrepreneurs (personally knows someone who started a business in the previous 2 yr)	No Yes	85.28 14.72	
Country of birth	Native; born in England Regional migrant, born in other UK states Immigrant, born Outside UK	89.87 3.53 6.60	
LSOA classification (Urban)	Rural and other areas Urban areas	32.78 67.22	
Knowledge and skills (“have the knowledge, skill and experience required to start a business”)	No Yes	85.28 14.72	
Business owners	No Yes	91.35 8.65	
Share of business owners	Share of business owners in the neighbourhood	*(Mean 0.086 SD 0.155)*	
Education	No formal qualifications GCSE A level Vocational and other Batchelor Masters & doctorate	15.91 25.82 19.41 12.30 19.55 7.01	

Figure 4.2: Spearman rho correlation coefficients for all variables used in the analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Entrepreneurial entry	1												
2 Gender: Female	-0.09	1											
3 Age categories	-0.05	-0.02	1										
4 Employment status	0.07	-0.11	-0.13	1									
5 Knowing other entrepreneurs	0.22	-0.11	-0.11	0.09	1								
6 Business angels	0.07	-0.04	0.01	0.03	0.16	1							
7 Country of birth	-0.00	0.00	-0.05	-0.00	0.04	0.02	1						
8 LSOA classification: Urban	-0.02	-0.02	-0.07	-0.01	-0.02	-0.01	0.08	1					
9 Knowledge & skills	0.27	-0.19	-0.00	0.13	0.34	0.12	0.02	-0.06	1				
10 Education	0.06	-0.05	-0.15	0.17	0.13	0.03	0.09	-0.04	0.12	1			
11 Business owners	0.31	-0.15	0.06	0.16	0.19	0.10	-0.02	-0.07	0.38	0.03	1		
12 Household income	0.02	-0.00	-0.03	0.10	0.05	0.03	0.01	-0.08	0.08	0.15	0.09	1	
13 Housing	-0.03	-0.03	-0.02	0.01	-0.02	-0.01	-0.01	0.29	-0.03	-0.03	-0.06	-0.05	1
Observations	8303												

Before presenting the results, it is important to note that when I calculated the standard errors and coefficient level, I accounted for the fact that the respondents are interrelated within their LSOA. Therefore, I had to cluster the standard errors on the LSOA to make them robust as discussed in chapter one.

4.5 ESTIMATION RESULTS: HYPOTHESES TESTING

Having reached the conclusion that MNL is sufficiently robust; and so are main results of the models discussed above, I now present the main results in Table 4.1, 4.2 and 4.3 below. I begin by reporting results of four models in Table 4.1. Model 1 includes the principle explanatory variable *female* and all the control variables with entrepreneurial entry as the dependent variable. Then Model 2, 3 and 4 includes the interaction variables – being a female with general human capital, specific human capital and social capital – in addition to all the control variables. The results indicates that the combined effect of human and social capital explains 29% of the variance in the dependent variable and the "*p"* value of the likelihood of becoming self-employed or ambitious entrepreneur at 0.000. In Table 4.2, I report results of two models, were Model 1 focuses on male entrepreneurial entry and the Model 2 is for female entrepreneurial entry. Table 4.2 and 4.3 reports the impact of wealth and income on entrepreneurial entry. The results show that the combined effect of wealth and income is weaker than the first estimates and only explains 21% of the variance in the dependent variable and the "*p*" of the likelihood of becoming self-employed or ambitious entrepreneurs remains the same at 0.000.

Table 4.1: Multinomial logit estimates

	Model 1		Model 2	
	Self-employed	Ambitious	Self-employed	Ambitious
Gender: Female	1.097	0.666*	3.729**	0.533
	(0.165)	(0.124)	(1.671)	(0.351)
Age: 25 to 34 years	1.822	1.407	1.810	1.420
	(0.691)	(0.627)	(0.699)	(0.633)
Age: 35 to 44 years	1.207	1.169	1.198	1.178
	(0.437)	(0.503)	(0.444)	(0.508)
Age: 45 to 54 years	0.785	0.587	0.773	0.596
	(0.295)	(0.268)	(0.297)	(0.273)
Age: 55 to 64 years	0.493+	0.433+	0.470+	0.441+
	(0.194)	(0.203)	(0.190)	(0.206)
In employment	1.184	0.710	1.205	0.716
	(0.300)	(0.194)	(0.305)	(0.195)
Knowing other entrepreneurs	1.920***	3.356***	1.931***	3.361***
	(0.290)	(0.658)	(0.294)	(0.659)
Regional migrant	1.820+	1.834	1.878*	1.809
	(0.575)	(0.726)	(0.592)	(0.713)
Immigrant	0.590+	0.670	0.579+	0.675
	(0.185)	(0.242)	(0.184)	(0.243)
LSOA classification: Urban	0.861	1.071	0.867	1.070
	(0.122)	(0.206)	(0.123)	(0.206)
Knowledge & skills	5.980***	12.10***	6.166***	11.84***
	(1.363)	(3.993)	(1.411)	(3.895)
Business owners	11.82***	1.911*	12.00***	1.910*
	(2.525)	(0.511)	(2.581)	(0.510)
Share of business owners	1.391	2.802*	1.378	2.889*
	(0.545)	(1.445)	(0.547)	(1.489)
Education: GCSE	0.829	0.666	1.659	0.750
	(0.221)	(0.246)	(0.638)	(0.318)
Education: 'A' level	0.840	0.906	1.429	0.936
	(0.232)	(0.327)	(0.580)	(0.388)
Education: Vocational & others	0.996	0.731	1.640	0.544
	(0.289)	(0.298)	(0.673)	(0.277)
Education: Bachelor	1.013	0.976	1.861	0.875
	(0.282)	(0.354)	(0.724)	(0.379)
Education: Masters & doctorate	1.415	1.375	2.875**	1.405
	(0.429)	(0.544)	(1.156)	(0.642)
Female X GCSE			0.211**	0.824
			(0.109)	(0.659)
Female X A level			0.306*	1.079
			(0.162)	(0.831)
Female X Vocational and others			0.336+	2.477
			(0.192)	(2.124)
Female X Bachelor			0.261*	1.526
			(0.138)	(1.143)
Female X Masters & doctorate			0.187**	1.119
			(0.117)	(0.925)
Observations	8303	8303	8303	8303
Log likelihood	-1370.0	-1370.0	-1362.9	-1362.9
LR chi^2	1123.5	1123.5	1137.8	1137.8
DF	36	36	46	46
Correctly predicted	0.950	0.950	0.950	0.950
Pseudo R^2	0.291	0.291	0.295	0.295

Note: + significant at 10% * 5%, ** 1%, *** .01%. Clustered standard errors in parentheses

Table 4.1 continued

	Model 3		Model 4	
	Self-employed	Ambitious	Self-employed	Ambitious
Gender: Female	0.825	0.819	0.996	0.750
	(0.295)	(0.469)	(0.210)	(0.177)
Age: 25 to 34 years	1.820	1.406	1.820	1.412
	(0.690)	(0.626)	(0.688)	(0.629)
Age: 35 to 44 years	1.202	1.169	1.206	1.176
	(0.435)	(0.503)	(0.435)	(0.505)
Age: 45 to 54 years	0.784	0.587	0.787	0.588
	(0.294)	(0.268)	(0.295)	(0.269)
Age: 55 to 64 years	0.494+	0.433+	0.497+	0.429+
	(0.194)	(0.202)	(0.196)	(0.201)
In employment	1.180	0.711	1.177	0.714
	(0.300)	(0.195)	(0.299)	(0.196)
Knowing other entrepreneurs	1.926***	3.352***	1.924***	3.336***
	(0.290)	(0.658)	(0.292)	(0.655)
Regional migrant	1.820+	1.834	1.820+	1.828
	(0.573)	(0.725)	(0.573)	(0.723)
Immigrant	0.590+	0.670	0.593+	0.666
	(0.184)	(0.242)	(0.184)	(0.240)
LSOA classification: Urban areas	0.861	1.071	0.863	1.063
	(0.122)	(0.206)	(0.122)	(0.205)
Knowledge & skills	4.893***	13.77***	5.928***	12.23***
	(1.572)	(6.684)	(1.354)	(4.054)
Female X Knowledge & skills	1.392	0.797		
	(0.534)	(0.479)		
Business owners	11.89***	1.902*	11.74***	1.891*
	(2.544)	(0.508)	(2.496)	(0.512)
Share of business owners	1.385	2.806*	1.189	3.580*
	(0.540)	(1.447)	(0.554)	(2.025)
Education: GCSE	0.827	0.666	0.830	0.665
	(0.220)	(0.246)	(0.221)	(0.247)
Education: 'A' level	0.836	0.907	0.843	0.905
	(0.230)	(0.329)	(0.232)	(0.328)
Education: Vocational & others	0.992	0.732	1.007	0.719
	(0.287)	(0.298)	(0.293)	(0.294)
Education: Bachelor	1.009	0.978	1.011	0.976
	(0.280)	(0.355)	(0.281)	(0.355)
Education: Masters & doctorate	1.410	1.378	1.427	1.358
	(0.426)	(0.545)	(0.434)	(0.538)
Female X Share of business owners			1.447	0.460
			(0.879)	(0.440)
Observations	8303	8303	8303	8303
Log likelihood	-1369.6	-1369.6	-1369.4	-1369.4
LR chi^2	1124.3	1124.3	1124.8	1124.8
DF	38	38	38	38
Correctly predicted	0.950	0.950	0.950	0.950
Pseudo R^2	0.291	0.291	0.291	0.291

Note: + significant at 10% * 5%, ** 1%, *** .01%. Clustered standard errors in parentheses

In *Hypothesis 1a*, I proposed that since the motivation to become self-employed differs by gender, women were more likely to become self-employed than men. In Table 4.1, Model 1, column one, I found that the effect of gender on the propensity to be self-employed is positive and statistically insignificant after controlling for a range of individual level characteristics. Therefore, I could not confirm *Hypothesis 1a* since I did not find that being a female is positively related to becoming self-employment. However, *Hypothesis 1b* is consistent with our theoretical predictions. In Model 1, column 2, I found that being female decreases the propensity to become an ambitious entrepreneur. Moreover the impact of being female on the decision to become an ambitious entrepreneur is stronger and is significant at 5% level confirming *Hypothesis 1b*.

The argument proposed in *Hypothesis* 2a is that women with higher levels of general human capital endowment may not choose to be self-employed because of higher opportunity costs. Therefore, women with lower levels of education may become self-employed due to low opportunity cost and may lose nothing or very little in the event that that the business fails. Based on Table 4.1, Model 2, column 3, when an interaction term of female and an levels of education is included in the model, the direct effect of being female on self-employment becomes positive and significant yet the interaction term of all the levels of education turns out to be negative and significant. This indicate that being female increases the likelihood of women to become self-employed but females expect to have lower preferences for being self employed as the levels of education increase as reflected by a very strong negative effect of education from GSCE qualification (*p<0.01)* upwards, as shown in Model 2, column 3 of Table 4.1. In addition, it has also been proposed that due to the lower quality of their general human capital women will be less likely to become ambitious entrepreneurs. Based on Model 2, column 4 of Table 4.1 the results indicate that the interaction of a woman with individuals with different levels of education has no significant influence on the propensity of a woman to become an ambitious entrepreneur. Therefore, I cannot confirm *Hypothesis 2a*.

Hypothesis 2b dealt with gender differences in the relationship between specific human capital and self-employment, and expected future size. I argued that due to low quality of specific human capital endowment caused by career disruptions, the effect of specific knowledge and skills would be weaker on women's likelihood to choose to become self-employed or ambitious entrepreneurs. The results support the hypothesis and these are presented in Table 4.1, Model 3. When an interaction term of gender with knowledge and skills is included in Model 3, column 5 and 6 of Table 4.1, the influence of being female on self-employment and ambitious start-up becomes negative and insignificant, while the interaction term is positive for self-employment and negative for ambitious but statistically insignificant for both. That leads to the conclusion that specific human capital does not raise or reduce self employment or future growth ambitions of females.

Hypothesis 3a posited that social capital would enhance the likelihood of women becoming self-employed. But *Hypothesis 3b* proposed that the effect of social capital will be weaker on likelihood of women to become ambitious entrepreneurs. Contrary to my expectation, social capital does not provide East Midlands women any additional comparative benefits to their decision to become self-employed or ambitious entrepreneurs as shown in Table 4.1, Model 4, column 7 and 8. Therefore, I could not confirm *Hypothesis 3a and Hypothesis 3b* because this factor does not have significant effect on the probability of women to be self-employed or ambitious entrepreneurs.

Hypothesis 4 posited that wealth, that is value of a house, will influence men's likelihood to become self-employed or an ambitious entrepreneur in the same way as it does to women. However, our results did not provide support for this hypothesis as I found that there are some significant differences between men and women on the influence of wealth on the likelihood of becoming self employed or ambitious entrepreneur. The results presented in Table 4.2, Model 1, column 1 and 2, indicates that an increase in the value of housing

(above Quintile 1 the reference category) does not increase or reduce the likelihood of men to become self-employed or ambitious entrepreneurs.

However, I find that, except for housing in Quintile 2 and 4; an increase in the value of housing reduces that likelihood of women to become self-employed as shown by a negative and significant relationship in Model 2, column 3. Thus, women who lived in low value houses (Quintile 1) are more likely to become self-employed than women living in high value houses. In contrast, the results indicate that an increase in the value of housing increases women's propensity to become ambitious entrepreneurs, as shown by a positive and significant relationship in Model 2, column 4. The results clearly indicate that women who lived in the poorest LSOA are less likely to become ambitious entrepreneurs compared to those who lived in other areas. Overall, the influence of the living conditions on the likelihood to become self-employed or ambitious entrepreneurs is much stronger for women than for men. Because of the negative and significant association between self-employment, and the insignificant influence (Quintile 4) and the positive and significant association (at 10% level, seen in Quintile 5) I find in Table 4.2, Model 2, column 4, lead to the conclusion that women and men's likelihood to become self-employed or an ambitious entrepreneur is not influenced in the same way and to the extent by this factor. Therefore, I cannot confirm *Hypothesis 4.*

Table 4.2: Multinomial logit estimates

	MODEL 1 (Male)		MODEL 2 (Female)	
	Self-employed	Ambitious	Self-employed	Ambitious
Age: 25 to 34 years	2.325	1.922	2.051	0.876
	(1.195)	(1.053)	(1.314)	(0.656)
Age: 35 to 44 years	2.237	1.413	1.728	1.120
	(1.115)	(0.753)	(1.053)	(0.771)
Age: 45 to 54 years	1.494	0.754	1.218	0.594
	(0.760)	(0.418)	(0.764)	(0.433)
Age: 55 to 64 years	1.236	0.693	0.826	0.352
	(0.639)	(0.389)	(0.566)	(0.291)
In employment	1.754+	0.955	3.575***	0.753
	(0.558)	(0.353)	(1.240)	(0.277)
Knowing other entrepreneurs	2.093***	4.079***	1.856**	2.645**
	(0.385)	(1.058)	(0.415)	(0.895)
Business angel	0.956	0.942	2.334+	3.716*
	(0.458)	(0.496)	(1.082)	(2.217)
Regional migrant	1.990+	2.863*	0.949	0.440
	(0.737)	(1.303)	(0.524)	(0.453)
Immigrant	0.350*	0.787	0.816	0.329
	(0.163)	(0.335)	(0.323)	(0.245)
Knowledge & skills	13.61***	16.46***	14.02***	12.52***
	(4.151)	(8.073)	(3.735)	(5.530)
Education: GCSE	1.362	0.717	0.428*	0.675
	(0.480)	(0.312)	(0.149)	(0.494)
Education: 'A' level	1.160	0.814	0.537+	1.058
	(0.431)	(0.342)	(0.180)	(0.761)
Education: Vocational & others	1.361	0.512	0.469+	1.337
	(0.526)	(0.264)	(0.191)	(0.965)
Education: Bachelor	1.409	0.713	0.497*	1.642
	(0.504)	(0.321)	(0.177)	(1.072)
Education: Masters & doctorate	2.439*	1.217	0.424+	2.091
	(0.908)	(0.573)	(0.204)	(1.518)
Housing: Quintile 2	0.968	0.940	0.774	3.819+
	(0.289)	(0.389)	(0.242)	(3.045)
Housing: Quintile 3	0.782	1.334	0.457*	5.600*
	(0.235)	(0.505)	(0.142)	(4.324)
Housing: Quintile 4	0.852	0.775	0.687	1.890
	(0.240)	(0.302)	(0.194)	(1.581)
Housing: Quintile 5	0.677	0.640	0.233***	4.053+
	(0.187)	(0.246)	(0.0827)	(3.162)
Observations	3373	3373	4930	4930
Log likelihood	-843.5	-843.5	-645.2	-645.2
LR chi^2	425.3	425.3	394.6	394.6
DF	38	38	38	38
Correctly predicted	0.925	0.925	0.966	0.966
Pseudo R^2	0.201	0.201	0.234	0.234

Note: + significant at 10% * 5%, ** 1%, *** .01%. Clustered standard errors in parentheses

Hypothesis 5 proposed that men and women with lower levels of household income are more likely to become self-employed. I found that this phenomenon holds for men's entrepreneurial entry. Based on Table 4.3 Model 1, the results show that men with higher levels of household income are less likely to become self-employed than men with lower levels of household income (up to £11,500 which is the benchmark category). Similar patterns also emerge on the effect of lower level of household income on the likelihood of becoming an ambitious entrepreneur. Thus, household income above £20,000 reduces the likelihood of men to engage in ambitious start-ups. Interestingly, based on Model 2, the results show that the level of income does not reduce or raise the likelihood of women to become self-employed or ambitious entrepreneurs as indicated by the statistically insignificant relationship between all the categories of household income and, self-employment and growth ambitions. Therefore I could not confirm *Hypothesis 5*.

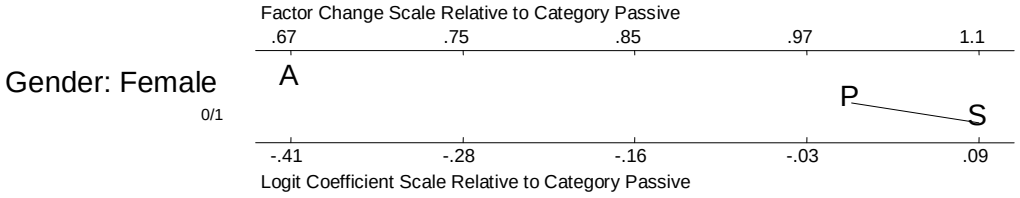
Table 4.3: Multinomial logit estimates

	MODEL 1 (Male)		MODEL 2 (Female)	
	Self-employed	Ambitious	Self-employed	Ambitious
Age: 25 to 34 years	2.338	1.913	2.205	0.883
	(1.223)	(1.063)	(1.430)	(0.651)
Age: 35 to 44 years	2.183	1.405	1.984	1.138
	(1.106)	(0.760)	(1.215)	(0.792)
Age: 45 to 54 years	1.474	0.752	1.438	0.581
	(0.764)	(0.422)	(0.911)	(0.429)
Age: 55 to 64 years	1.227	0.648	0.948	0.338
	(0.645)	(0.366)	(0.653)	(0.278)
In employment	2.204*	1.401	3.700***	0.708
	(0.768)	(0.586)	(1.315)	(0.262)
Knowing other entrepreneurs	2.055***	4.274***	1.991**	2.596**
	(0.387)	(1.104)	(0.439)	(0.875)
Business angel	1.053	0.920	2.709*	3.028+
	(0.508)	(0.484)	(1.262)	(1.907)
Regional migrant	1.932+	2.945*	0.954	0.513
	(0.706)	(1.301)	(0.518)	(0.526)
Immigrant	0.323*	0.702	0.729	0.378
	(0.153)	(0.297)	(0.293)	(0.277)
Knowledge & skills	13.92***	17.28***	14.15***	12.86***
	(4.248)	(8.472)	(3.752)	(5.590)
Education: GCSE	1.523	0.766	0.429*	0.639
	(0.530)	(0.331)	(0.147)	(0.456)
Education: 'A' level	1.252	0.950	0.564+	1.027
	(0.465)	(0.397)	(0.188)	(0.719)
Education: Vocational & others	1.490	0.541	0.506+	1.222
	(0.569)	(0.277)	(0.202)	(0.879)
Education: Bachelor	1.563	0.915	0.548+	1.566
	(0.575)	(0.396)	(0.196)	(1.040)
Education: Masters & doctorate	2.651*	1.762	0.503	1.845
	(1.026)	(0.823)	(0.239)	(1.380)
Income: £11,501 to £20,000	0.402**	0.640	0.919	1.490
	(0.125)	(0.234)	(0.282)	(0.726)
Income: £20,001 to £49,999	0.431**	0.365**	0.851	1.455
	(0.122)	(0.141)	(0.269)	(0.725)
Income: Over £50,000	0.603+	0.311**	0.856	1.010
	(0.183)	(0.125)	(0.267)	(0.533)
Income: Not stated	0.513+	0.445+	1.349	1.224
	(0.176)	(0.210)	(0.445)	(0.707)
Observations	3373	3373	4930	4930
Log likelihood	-836.6	-836.6	-660.7	-660.7
LR chi^2	439.2	439.2	363.5	363.5
DF	38	38	38	38
Correctly predicted	0.926	0.926	0.965	0.965
Pseudo R^2	0.208	0.208	0.216	0.216

Note: + significant at 10% * 5%, ** 1%, *** .01%. Clustered standard errors in parentheses

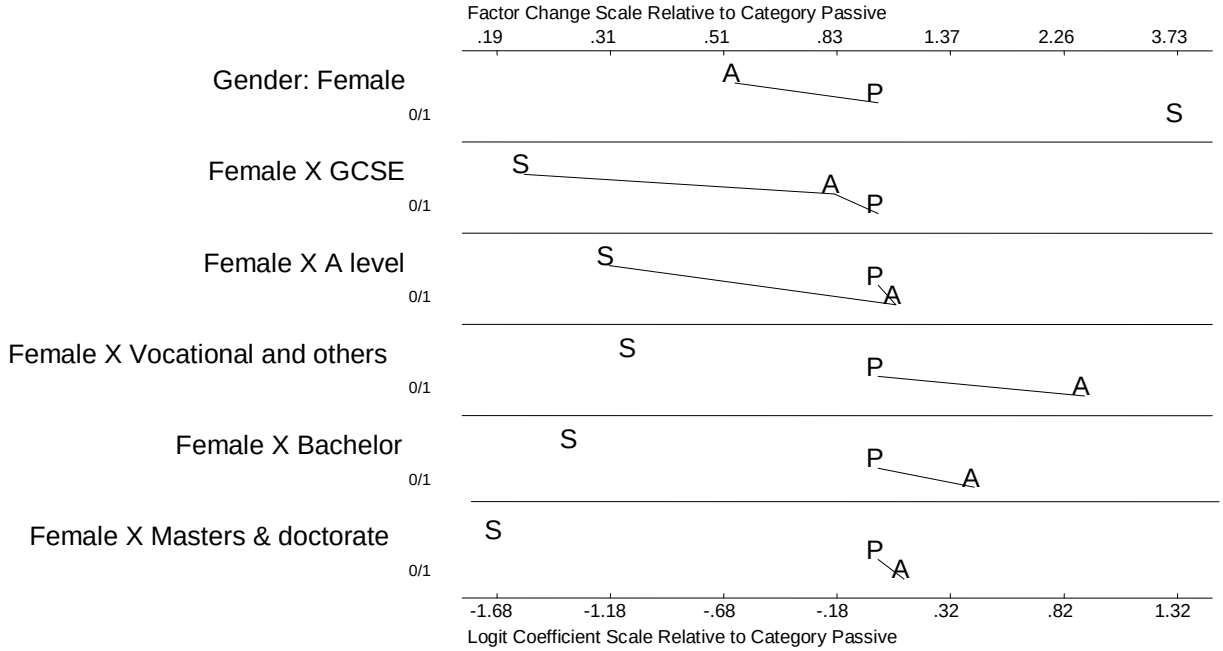
While the discussion above focused on the statistical significant relationship of the explanatory variables on the dependent variable, this section explores the magnitude of the effects. To do this, I present plots which show the factor change in odds, that is, how a unit change in the explanatory variable affects the likelihood of choosing any of the outcomes holding all other variables in model at mean (Gelman and Hill 2006; Long and Freese 2003). The three entrepreneurial entry outcomes are labelled as: passive (P), self-employed (S) and ambitious entrepreneurs (A). It is important to note that in all the graphs, the effect of each explanatory variable is presented in a separate row, positive effects relative to the benchmark outcome are on the right hand side and negative on the left hand side of the benchmark category. The distance between the benchmark category and any outcome represent the magnitude of the effect. Any effects (benchmark and outcome) that are not statistically significant at $p<0.1$ are connected by a line.

Figure 4.3: Factor changes in odds of entrepreneurial entry: Female



Figures 4.3 illustrate the effects of gender but are of low magnitude. Being female has a very strong negative effect on the likelihood of becoming an ambitious entrepreneur, which is consistent with our theoretical prediction. However, this effect is counterbalanced by the positive effect on the decision to become self-employed which is in contrast to our main argument but has no significant effect.

Figure 4.4: Factor changes in odds of entrepreneurial entry: Education



I now present the effects of general human capital based on the interaction between female and categories of education, illustrated by Figure 4.4 above. Moving up the categories of education makes self-employment less likely as compared to the lowest level of education (omitted benchmark category) which is consistent with *Hypothesis 2*. In particular, the effect of GSCE and postgraduate education dominates and the likelihood of women to become self-employed becomes least likely, but the effect declines as I move towards the vocational and other category. Thus, the positive effect of lower levels of education on becoming self-employed is much stronger for women than for men. However, for ambitious entrepreneurs, although the effect is statistically insignificant, the positive effects of vocational qualifications dominate but this is counterbalanced by the negative effects of GCSE which reduces the impact, which is not consistent with *Hypothesis 2*. The differences between the two outcomes, self-employment and ambitious entrepreneurs, are illustrated in Figure 4.4 (Gender: Female variable) and they are based on Model 2 results presented in Table 4.1.

Figure 4.5: Factor changes in odds of entrepreneurial entry: Knowledge & skills

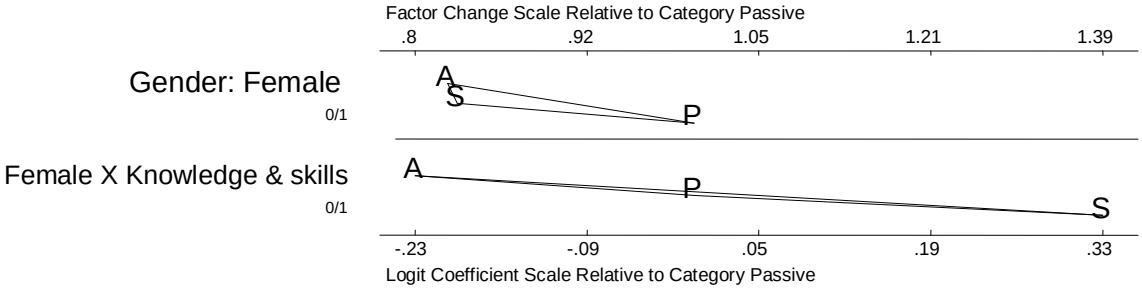


Figure 4.6: Factor changes in odds of entrepreneurial entry: Social capital

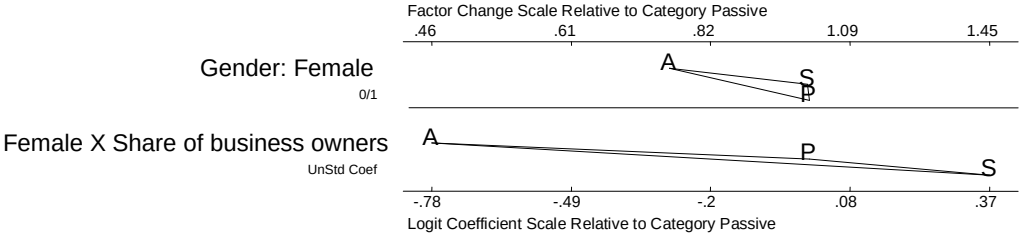
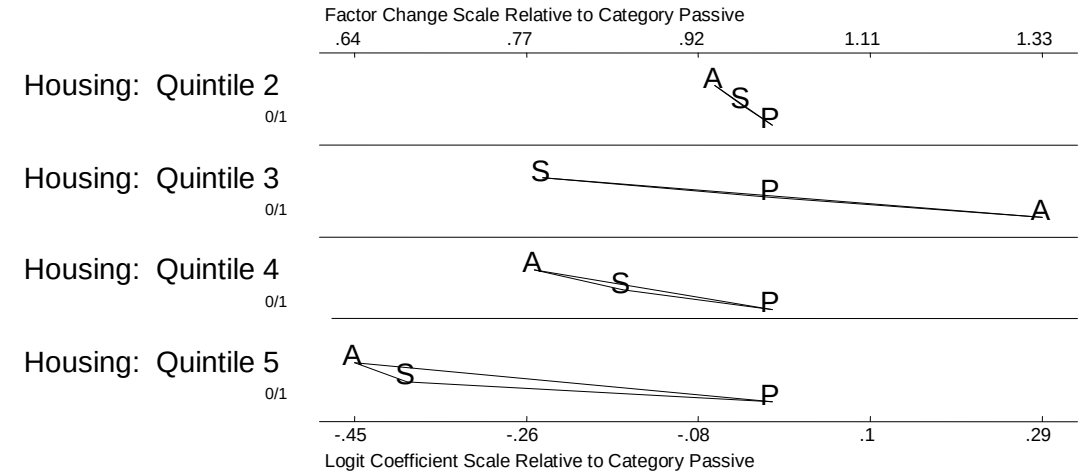


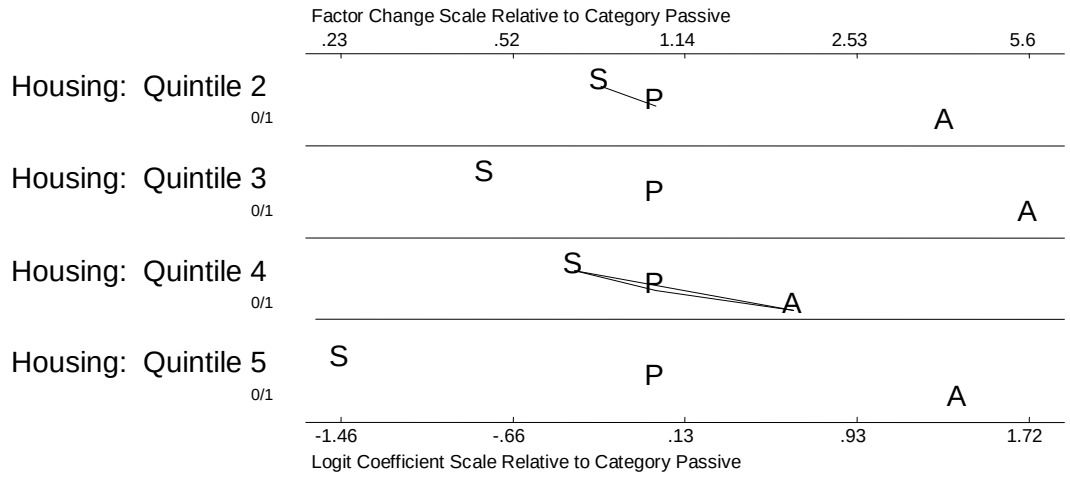
Figure 4.5 and 4.6 illustrates the effects of the interaction of female with individuals with knowledge and skills (specific human capital) to start a business and the share of existing business owners (social capital) in the neighbourhood that are not statistically significant. This tells us that these factors do not have a direct or indirect effect on women's decision to become self-employed or ambitious entrepreneurs hence they affect women in an identical manner as they do to men.

Figure 4.7: Factor changes in odds of male entrepreneurial entry: Housing



I present the effects of wealth based on the value of houses in Figure 4.7 and 4.8 based on results from Table 4.2 Model 1 for male entrepreneurs and Model 2 for female entrepreneurs respectively. I expected to find a linear relationship between wealth and entrepreneurial entry. Instead, I find an insignificant effect (Figure 4.7) of wealth on the likelihood of men to become self-employed and ambitious entrepreneurs which is not consistent with our hypothesis. However, in Figure 4.8 a nonlinear story emerges for the effect of wealth on women's likelihood to become self-employed and ambitious entrepreneurs. I find an "S" shaped pattern of the effect of housing on women's likelihood to be self-employed and the negative and statistically significant effect of the housing located in the prosperous areas. Thus, women with who live in less deprived areas are less likely to become self-employed than those with the most deprived neighbourhoods, that is, women living in the 20% of the least prosperous LSOA (Quintile 1). The magnitude of the effect of housing located in prosperous areas (Housing – Quintile 5) dominate and being involved in self-employment least likely. Therefore, I may conclude that opportunity cost effect of self-employment is much stronger and that discourages women who live in less deprived areas from choosing to become self-employed and this is not consistent with the theoretical prediction.

Figure 4.8: Factor changes in odds of female entrepreneurial entry: Housing



Furthermore, with the exception of Quintile 4, I find a convex pattern of the magnitude of effects of the housing on the likelihood of women becoming ambitious entrepreneurs. The results indicate that the strongest effect is at the middle of the housing distribution. Instead, the magnitude of effect for Quintile 2 and 5 is identical and lower than that of Quintile 3 indicating that the effects of house values is weak at the top end of housing category. In other words, the lower magnitude of the effects found at the top end of the housing category could be an indication that even if there may be some liquidity constraints they cease to bind. This finding does not offer support to *Hypothesis 4*.

Figure 4.9: Factor changes in odds of male entrepreneurial entry: Household income

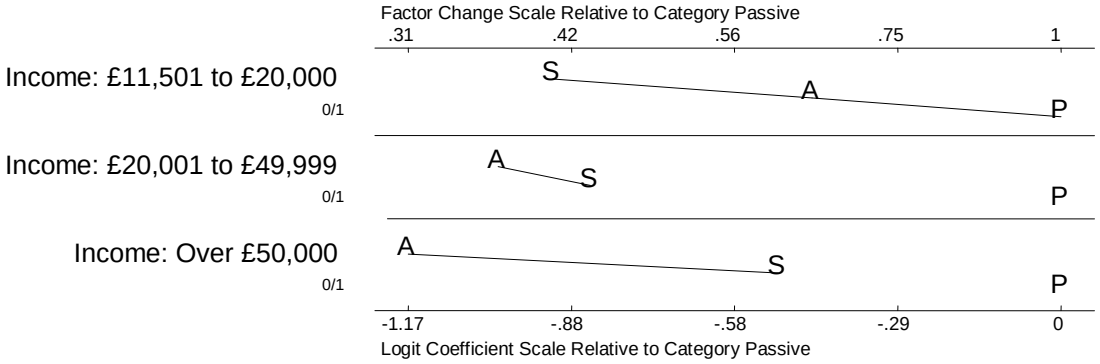
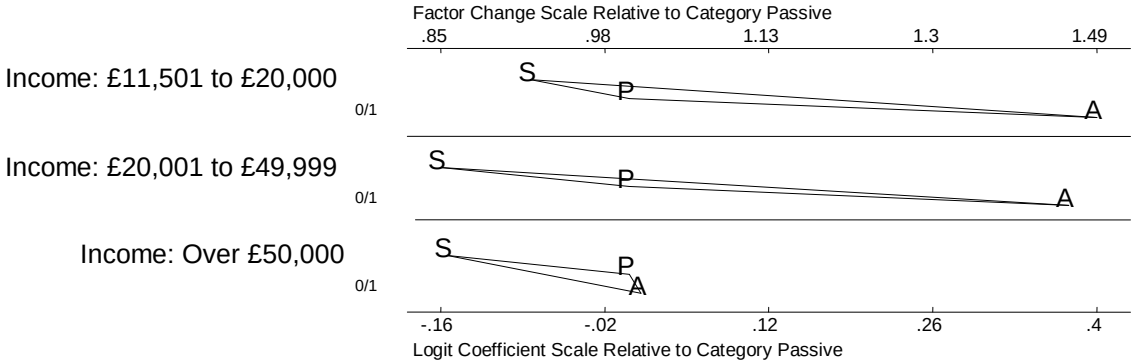


Figure 4.10: Factor changes in odds of female entrepreneurial entry: Household income



Finally, Figure 4.9 and 4.10 reports effects of dummy variables for head of household income on self-employment and growth ambitions and is based on Table 4.3 Model 1

(men) and 2 (female). Figure 4.9 provides evidence of a negative and significant effect of financial capital on self-employment when moving up the categories of household income. The results indicates that men with income levels above £11,500 are less likely to be self-employed than men with lower levels of income (below £11,501) which is the benchmark category. This pattern is consistent with the findings of a nonlinear relationship, where the negative effects of £11,501 to £20,000 income category dominates and declines as I move up through the categories of household income. However, a liner pattern exists for the negative and significant effects of financial resources on men's decision to become ambitious entrepreneurs. Men within the highest income category, "Over £50,000", are least likely to become ambitious entrepreneurs indicating the existence of an opportunity cost effect and that is not consistent with *Hypothesis 5.* In contrast, Figure 4.10 illustrates the effect of financial resources on the likelihood of women to become self-employed or ambitious entrepreneurs. The results indicates that the effects of income levels above £11,500 on women's decision to become self-employed or ambitious entrepreneurs is of the same magnitude as that of income levels below £11,500 which is the benchmark category. The results indicate that household income has effect on women's decision about whether to or not, become self-employed or ambitious entrepreneurs and that does not offer support to *Hypothesis 5.*

4.6 DISCUSSION AND CONCLUSION

The purpose of this chapter has been to examine the effect of human, social, financial capital and wealth on men and women's decision to become self-employed or ambitious entrepreneurs in East Midlands region in the UK. Results indicate that being female does not lower or raise the likelihood of becoming self-employed but women were less likely to become ambitious entrepreneurs than men. I found that being female increases the likelihood to become self-employed but a woman would expect her preferences for being self-employed to decline as the level of education increases. I also found that higher levels

of education provided women with no additional benefit and it does not reduce or increase the likelihood to become ambitious entrepreneurs. Regarding specific human capital and social capital I found that these factors did not provide women with any comparative advantages on their propensity to become self-employed or ambitious entrepreneurs. For the effects of wealth, I found that possession or access to higher levels of wealth does not motivate or de-motivate men from becoming self-employed or ambitious entrepreneurs. In contrast, I also found that living in housing located in less deprived areas discouraged women from becoming self-employed. On the contrary, living in housing located in less deprived areas motivated women to become ambitious entrepreneurs. Lastly, possession or access to higher levels of household income discouraged men from entering into self-employment or ambitious start-ups. However, higher levels of household income did not offer any additional benefits to women above those offered by lower levels of income. I believe these findings have some interesting academic and policy-making implications.

Using the economic perspective of the entrepreneurial occupational choice theory and social capital theory, I developed a core proposition that women are more cautious than men when marshalling resources given the uncertainties associated with entrepreneurship. This led to the hypothesis that such behaviour has a negative effect on women's entrepreneurial entry and that shapes their strategies and deployment of resources to achieve the desired outcomes. The findings suggest that, despite higher economic prospects associated with start-ups and the likelihood of them to become a source of growth, the reasons for starting new firms may not be associated with perceived business opportunities or wealth attainment. Instead, individuals pursuing objectives associated with improvements in their employment conditions or income often prefer to start a new firm in an established industry or sector, yet the main driver of individuals starting growth oriented businesses is desire for personal growth, self realisation and self fulfilment. Here, the start-up reasons should differ by gender. In fact, the negative motivational effect of occupational segregation forces individuals to seek employment and income improvements and this

phenomenon is common among women, whereas self realisation motive is one of the main characteristics of men. Since the reasons to start growth oriented businesses are associated with the hope that such businesses will provide self realisation opportunities; and the fact that self realisation is a characteristic of men only, might explain the dominance of men among ambitious entrepreneurs. It could be that women have a realistic view of the challenges or difficulties associated with business growth; hence their propensity to become ambitious entrepreneurs is lower compared to men. Given that the extant research has shown that women are faced with more perceived and actual barriers in obtaining start-up resources, therefore, they make a deliberate and conscious choice of pursuing a route that has a fewer entry barriers. Accordingly, women who seek a work-life balance may perceive that the easier way is to start a business that requires lower levels of capital investment, thus they tend to prefer self-employment. This explanation is consistent with the lack of significant differences for the likelihood of women becoming self-employed: to the extent that women do not perceive barriers in access to resources, there should be no differences in the push motive between men and women in their propensity to become self-employed.

This study also explored the role of human capital in an individual's decision of becoming a nascent entrepreneur. The study made a distinction between general and specific human capital and hypothesised that both types of human capital will be associated with the likelihood of becoming self-employed and ambitious entrepreneur. Davidsson and Honig (2003) argued that human capital facilitated entry into entrepreneurial activity by providing individuals with the knowledge which enabled them to identify business opportunities and at the same time enhancing their self-confidence in exploiting the new business ideas. In terms of general human capital; Chapter Four provide evidence which suggest that the opportunity cost effect prevails and being female increases the likelihood of becoming self-employed but a woman would expect to have lower preferences for being self employed as the level of education increases. It is more likely that highly educated women perceive that

becoming self-employed leads to reduced income compared to the income from employment (see Evans and Leighton 1989b). This finding is consistent with Kim et al (2006) who also found that higher levels of education discouraged entry into entrepreneurship. However, I did not find evidence to suggest that higher level of education has a significant direct or indirect effect on the propensity of women to become ambitious entrepreneurs.

It has been argued that employment background characterised by multiple career changes or disruptions will have a greater impact on entrepreneurial entry. I found that this phenomenon holds and showed that the magnitude of the effect of knowledge and skills on the decision of women to become self-employed and ambitious entrepreneur is minimal. This tells us that since the life-course events and employment background of men and women differ, this has an effect on their experiences, beliefs and cognitive maps resulting in differences in the quality of stocks of human capital which shapes their relationship with entrepreneurship (Davis and Shaver 2012; Koeber and Wright 2006). On the one hand, women use lower quality of general knowledge and skills acquired from multiple sources of employment which they transfer into self-employment or ambitious start-ups. Yet, on the other hand men rely on entrepreneurial specific knowledge and skills acquired from industries which motivate them to become ambitious entrepreneurs. Moreover, this is inconsistent with previous studies that found that specific human capital is positively associated with the discovery and successful exploitation of new business opportunities (Davidsson and Honig 2003).

The third factor considered in this discussion is how social capital, measured by the average number of business owners in the neighbourhood, influence women's decision to become self-employed or ambitious entrepreneurs. Accordingly, it is incorrect to infer that social capital exclusively influences female or male entrepreneur's choices only. Instead, I find that the magnitude of the effect of social capital on the likelihood of men and women to

become self-employed or ambitious entrepreneurs is indistinguishable. In fact a higher number of existing business owners in the neighbourhood increases the likelihood of women to become self-employed and ambitious entrepreneurs in the same way as it does to men. This supports the theory which suggest that the environment exerts a significant influence on an individual's decision which has an impact on the entry choice and how businesses emerge or expand (Minniti 2004; Stinchcombe 1965). In particular, the importance of having similar firms in the community that may increase or reduce the attractiveness of becoming self-employed or ambitious entrepreneurs (Minniti 2005) which leads to a distinct type of businesses to emerge in a community (Aldrich and Kim 2007; Ruef 2000).

Another area explored in this chapter relate to the effect of housing on men and women's decision to become self-employed or ambitious entrepreneurs. The main hypothesis is that there should be no difference between men and women on the positive effect of wealth on the likelihood of becoming self-employed or ambitious entrepreneurs. Therefore, if liquidity is an important factor, I would expect to see a discernible increase on the positive impact of wealth on self-employment and growth ambitions as I move up the housing categories, that is, from housing located in deprived areas to housing located prosperous areas where the value of houses are higher. What I find is that the effect of housing on self-employment and ambitious start-ups differs by gender. The effect of poor living conditions encouraged women who live in the 20% of the most deprived areas to become self-employed but discouraged the majority of women who live in less deprived areas from becoming self-employed. In contrast, the effect of poor living conditions discouraged women who live in the 20% of the most deprived areas to become ambitious entrepreneurs but encouraged the majority of women who live in less deprived areas to become ambitious. I also find that location or condition of housing has no significant effect on men's entry into self-employment and growth oriented businesses for the majority of households in the East Midlands region. Although I found a significant effect of housing on women's decision to

become self-employed and ambitious entrepreneurs the findings are akin to those produced by Hurst and Lusardi (2004) and Kim et al (2006). In the following section, I will start by providing explanations for these findings and then move on to discuss why there is a strong correlation between wealth and women's entry into self-employment for households who live in less deprived areas and entry into ambitious start-ups for households with median level of wealth.

An explanation for why housing is not important for men's entry into self-employment or growth oriented ventures may be that nascent entrepreneurs use personal savings since financial resources required to start most businesses is very low. In addition, majority of nascent entrepreneurs develop their businesses at their homes which reduces the need for a large amount of start-up equity. Since the initial start-up capital is relatively low, it would not be surprising to find little or no effect of housing on the probability of becoming self-employed or ambitious entrepreneur along most of the housing categories.

Although the magnitude of the effect of housing on men's entrepreneurial entry is very low on most of the housing categories, a strong relationship exist between housing and the likelihood of women becoming self-employed and ambitious entrepreneurs. Regarding women's self-employment, the "S" shaped pattern of the magnitude of the effect of housing on the likelihood of women to become self-employed is not consistent with the existence of financial constraints. Instead, the finding reflect the differences in the behaviour of women who live the most deprived areas (Quintile 1) from that of the other women who live in less deprived areas (Quintile 2 upwards). This reflects the existence of the opportunity cost effect were the impact of poor living conditions encouraged women who live in the 20% of the most deprived areas to become self-employed. Whereas the opposite is true for women who live in less deprived areas were higher opportunity costs discouraged them from becoming self-employed.

In terms of ambitious entrepreneurs, the behaviour of women at the middle of the housing distribution is different from women at the lower and higher end of the housing distribution and may indicate the differences in preferences and strategies employed by women given the inherently high risk associated with fast paced business growth. Viewing it from the most deprived areas, it is more likely that women who lived in Quintile 3 might have accumulated large amounts of human and financial capital when they started operating their businesses while residing in LSOA were the housing has lower value. Those who succeed are more likely to move and relocate to areas which are less deprived areas as shown by Frankish et al (2014) that in the UK, there is a link between income and housing. Therefore, most business owners who accumulate higher levels of income are more likely to move to LSOA where the house value is higher. Given the migration effect, it is not surprising to see a higher concentration of female ambitious entrepreneurs in this housing category resulting in the likelihood of women becoming ambitious entrepreneurs to be higher. In contrast to extant literature which posits that individuals with higher levels of wealth are more likely to take risks (Blanchflower and Oswald 1998; Evans and Jovanovic 1989; Evans and Leighton 1989a; Fairlie and Krashinsky 2012; Holtz-Eakin et al. 1994a; Wang et al. 2012), I find that women in the top quintile of the housing categories are less likely to report the willingness to take a risky gamble of becoming ambitious entrepreneurs than women at the middle quintile of the housing categories. The fact that women in the top quintile of the housing distribution are less likely to take risk may reflect that women make a conscious choice when considering the size of business (Marlow and Swail 2014), business premises (Gurley-Calvez et al. 2009; Jayawarna et al. 2013) and expected future size of the firms. These factors may explain why the probability of women to become ambitious entrepreneurs is higher at the middle of the wealth distribution and declines as the level of wealth increases.

Lastly, the results do not suggest that women who want to be self-employed or ambitious entrepreneurs have unlimited access to resources. Instead, they indicate that even if some

women are constrained from borrowing, these constraints are not statistically significant and do not limit transition into self-employment or ambitious start-ups in the East Midlands region.

This chapter also provides evidence that in East Midlands region in the UK, financial capital play a distinct role in influencing men and women to become self-employed or ambitious entrepreneurs. The results indicate that men with higher levels of income (over £11,500) were less likely to become self-employed than men with lower levels of income. However, the threshold changes for men who become ambitious entrepreneurs were men with income levels above £20,000 were less likely to become ambitious entrepreneurs than those with lower levels of income. The result suggests the existence of the opportunity cost effect which discouraged men with higher levels of household income to become self-employed or ambitious entrepreneurs. This is inconsistent with Verheul and Thurik (2001) who found that the effect of financial capital in facilitating entry into entrepreneurship does not differ significantly between men and women. Therefore, possession or access to lower levels of financial capital makes it easier for men to become self-employed or an ambitious entrepreneur, reflecting low opportunity cost consideration. These findings are consistent with those of recent studies (see Mickiewicz et al. 2014; Nyakudya et al. 2013) who also showed that higher levels of financial capital limit the transition into entrepreneurial activity. Finally, financial capital is not a barrier to transition into self-employment and ambitious start-up for most women. This finding is consistent with Kim et al (2006) who also reported a no relationship between financial capital and entrepreneurship. This suggests that potential entrepreneurs can make voluntary attempts to transition from other employment options into entrepreneurial activity. The reasons why financial capital is not important in facilitating entry into entrepreneurship for women in the East Midlands region are the same as those discussed in the wealth section.

As with any research, this study has some limitations which need to be acknowledged. In this study I focused on the association between four types of capital and entry into self-employment and ambitious start-ups. While my objective to examine human, social, wealth and financial capital was based on prior research I could have included other important dimensions of capital in addition to the factors I examined. I only considered one dimension of social, wealth and financial capital, yet each of these variables has several sub-dimensions. For example, the GEM dataset does not have data on individual income level; therefore, head of household income data has been used, which could imply measurement error. Since I used data collected by GEM it limited my ability to obtain data for multiple dimensions. Therefore, I might have omitted some important variables such as detailed information on work experience that could have helped in enhancing our understanding of how individual level resource endowments affected men and women's probability to engage in entrepreneurial activity. Due to the nature of the datasets, I examined the probability of entry into entrepreneurship from a static view. Surely this is inferior since it has been impossible to model the longitudinal nature of male and female entry into entrepreneurship by examining the relationship between human, social, wealth, financial capital and entrepreneurial entry over time.

I believe these findings have several implications for practitioners and policy makers. The negative relationship found between being female and ambitious entrepreneur is not surprising and has practical implications. The fact that potential entrepreneurs who are inclined to growth orientation are motivated by the desire to make profit and others are driven by the desire to improve their income or employment conditions is crucial since it suggests different types of intervention that may be appropriate in differing contexts and for different groups of the local community. Practitioners and policy makers may draw on these findings when designing intervention programs; in order to encourage entry into ambitious entrepreneurship which is associated with innovation, resources should be directed at providing appropriate tools to facilitate or encourage innovativeness to potential

entrepreneurs. In addition, the gender differences found indicate that women are less likely to become ambitious entrepreneurs given that their motive of engaging into entrepreneurial activity is the desire to improve their income and employment conditions. Therefore, for practitioners, the way to encourage innovativeness of women nascent entrepreneurs is to emphasise on the role of innovativeness in interventions programs designed for women.

The results suggest that entry into self-employment or ambitious start-up does not depend upon wealth alone but income and human capital play role in facilitating or limiting entry into entrepreneurship and this has some practical implications. This demonstrates that due to higher opportunity costs, individuals with higher levels of resources are discouraged from engaging in entrepreneurial activity. Therefore, emphasis should be on the importance of entrepreneurial specific training, and suggest that effort and resources should be directed towards the enhancement of entrepreneurial skills of prospective entrepreneurs in order to equip them with the entrepreneurial specific knowledge and skills which facilitate in the identification and exploitation of new innovative business opportunities. Moreover the gender differences in the effect of general and specific human capital offers guidance to practitioners and policy makers on the distinct types of resources that are important to women and men. This is particularly useful for policy makers and academics and should be incorporated into policy guidelines and training programs which may lead to increased entrepreneurship-specific skills and motivate men and women with higher levels of resource endowments to enter into entrepreneurship.

CHAPTER FIVE

5 CONCLUSION

5.1 INTRODUCTION

The main aim of the thesis is to examine the determinants of entry into entrepreneurship in the East Midlands region in England. The three specific objectives of the thesis are to examine the determinants of (i) an individual's decision to engage in the different stages of the entrepreneurial process, (ii) natives and migrants' decision to engage in start up activity and (iii) women and men's decision to become self-employed and ambitious entrepreneurs. In this chapter, I bring together empirical findings drawn from three different chapters of the thesis.

The rest of the chapter is organised as follows. In the next section I present the main findings and conclusions of the thesis. Then I draw some managerial and policy implications which are based on findings of the thesis. This is followed by a discussion of the contribution of the thesis to the existing body of knowledge. I conclude by presenting the limitations of the study.

5.2 MAIN FINDINGS

In this section, I summarise the main findings of the thesis following the order of the specific objectives presented above.

5.2.1 Determinants of stages of the entrepreneurial process

The literature review presented in Chapter Two pointed at the importance of investigating the role of individual resources and capabilities, and contextual factors on different stages of entrepreneurship, because as argued, the determinants may vary across the different stages of new firm formation. While the determinants of entrepreneurial stages have been investigated at country level (Grilo and Thurik 2008; Van der Zwan et al. 2010; Van Der Zwan et al. 2013), this approach has not yet been applied at the regional level. In this chapter, the new firm formation process is split into five entrepreneurial stages – (i)

passive, (ii) considering entrepreneurship, (iii) intending to start-up a business in the next 3 years, (iv) nascent entrepreneurial activities, (v) newly established businesses (up to 42 months old). I investigated the determinants of entry into these stages of new firm formation using a multinomial logit model which allows the effects of resources and capabilities to vary across the different entrepreneurial stages. I employ a pooled Global Entrepreneurship Monitor (GEM) database for the years 2006 to 2009, containing 8,269 usable observations from the East Midlands region in the United Kingdom, Discriminating between five stages does not only help in enhancing our understanding of the effect of resources and capabilities on different stages of the entrepreneurial process or identifying where the risk of discontinuity in the process, but also has some important implications for policy makers.

Chapter two provides empirical evidence that support the view that the determinants of the probability of an individual to engage in entrepreneurial activity vary across the different stages of new firm formation. The findings indicates that possession and access to resources specifically, financial and general human capital have varying influence on an individual's entry into different stages of the new firm formation process in the East Midlands region in the UK. I find that higher levels household income decreases the probability of an individual to engage in entrepreneurial activity, that is, considering, intentions, nascent and baby businesses which may be explained by the opportunity cost effect of entrepreneurship. The findings suggest higher opportunity cost discourages individuals with higher levels of household income, above £11,500, to engage in entrepreneurial activity. Yet individuals in the lowest income category, below £11,501, may find the opportunity cost of entrepreneurship to be very low and may lose nothing or very little in the event that they fail to succeed in entrepreneurial activity. This was supported by results of additional tests for differences in coefficients across the outcomes were I found that differences for most of the categories were insignificant. Therefore, I conclude by stating that the lowest level of household income category is positively associated with

considering, intentions, nascent and baby businesses - increasing the probability of an individual to engage in the different stages of entrepreneurial process.

Chapter two also provides empirical evidence that the effect of human capital on the probability of engaging in entrepreneurial activity vary across the different stages of new firm formation. The results concerning human capital based on the level of formal education indicate that the major difference is not between the pre start-up phase (considering and intentions) and the start-up phase (nascent entrepreneurs and baby businesses), but between nascent entrepreneurs and baby businesses (owners-managers of new businesses). Specifically, I found that while higher levels of education facilitates entry into the pre start-up phase of entrepreneurial activity, this positive effect is not carried over to the advanced stages of new firm formation. In particular, the probability of becoming an owner-manager of a new business increases as I move up the categories of education. However, turning back to nascent entrepreneurs, this positive effect of higher levels of education is counterbalanced by the negative impact of the opportunity cost of education which significantly reduces the effect. Therefore, in the East Midlands region, individuals with higher levels of education are less likely to engage in nascent entrepreneurial activities (nascent entrepreneurs) than being owners of newly established businesses.

Another argument proposed in chapter two is that individuals who are employed may not choose to engage in entrepreneurial activity because entrepreneurship may lead to reduced income compared to employment opportunities. I found this phenomenon holds for two pre start-up stages of new firm formation: considering entrepreneurship and intentions to start a business in the next three years. This may indicate that higher opportunity cost discouraged individuals who are employed to consider entrepreneurship as a viable career option. However, for those who enter into the advanced stages of new firm formation – nascent entrepreneurship and ownership of new business - the negative

impact is reserved. Consistent with the main argument, the positive impact of being in employed on the advanced stages of entrepreneurship is even much stronger for ownership of new businesses. This implies that possession and access to resources makes it easier to become an owner of a new business than being a nascent entrepreneur.

In addition to variables used to capture the impact of resources – financial and general human capital – used in this investigation, the chapter extended the current knowledge by taking into account the impact of capabilities, in particular the impact of human capital assets and social networks to capture the influence of some of the unique features of the East Midlands region focusing on the local business environment related factors. I provide empirical evidence that support the view that determinants of entry into entrepreneurship vary as I move along the different stages of new firm formation. The results show that the variable aimed at capturing the impact of human capital assets – entrepreneurial specific knowledge and skills – is positive and statistically significant indicating that entrepreneurial specific skills and knowledge increases the probability of considering, intending to become an entrepreneur, becoming a nascent entrepreneur and owner of new business. Moreover the effect entrepreneurship specific skills increases as I move along the subsequent stages of new firm formation and the strongest effect is on the likelihood of becoming an owner of a new firm. Furthermore, the effect human capital assets dominate that of other variables used in the analysis. This may indicate the importance of human capital assets compared to other factors such as financial and general human capital, and social networks.

Finally, I investigated the role of the local environment and show the environmental effects change along the entrepreneurial process. I expected that the having a high number of entrepreneurs in the neighbourhood is likely to have a positive effect on considering entrepreneurship as a favourable career choice in addition to knowing other entrepreneurs individually. It is assumed that additional knowledge is more likely to be accessed via

personal contacts and role models became more accessible and visible in the local environment. Owners of established businesses provides access to emotional, socio-expressive resources and, knowledge (tacit and explicit) and specific skills, which makes entrepreneurship a more attractive. In addition to this, I also argued that once I move along the subsequent stages of the entrepreneurial process, the effect will become weaker in local environments where density of entrepreneurs is high and the negative effect of competition will reverse the positive effects. This phenomenon holds for one component of the capabilities - social network (share of business owners in the neighbourhood). Indeed, distinguishing between the different stages of entrepreneurship enables to overcome some of the weaknesses of previous studies and solve some of the ambiguities found in the literature I highlighted in Chapter Two. In particular, while the vibrant business environment has an unambiguous positive impact on the pre start-up stages (considering and intentions) of the new firm formation, this positive effect is not carried over to the advanced stages of entrepreneurship (nascent and baby businesses) due to increased competition. This finding is important because it takes us back to the core of the resource-based theory of entrepreneurship which posit that entrepreneurs need to rely on rare, valuable, inimitable and non-substitutable resources to succeed in entrepreneurial activity (Alvarez and Busenitz 2001). This is why in the advanced stages of new firm formation; the impact of individual resources and capabilities dominates over the environmental effects.

In summary, although the distinction between the stages of new firm formation has been acknowledged in many cross country entrepreneurship studies, it has been largely ignored in empirical work and in particular at the regional level. Based on the findings highlighted above, it is possible to conclude that in the pre start-up stages of the new firm formation, higher opportunity cost discourage individuals with better resource endowments to consider entrepreneurship as an attractive career choice and to intend to own a business in the near future. However, when they choose to enter entrepreneurship, they do so because they might have identified a market opportunity and become nascent

entrepreneurs or owners of new businesses. Here the opportunity cost effect is reversed and possession or access to resources and capabilities makes it easier for individuals to succeed in the advanced stage of new firm formation. This has some important policy making implication and the different stages of new firm formation should be not be taken for granted in the light of the financial constraints facing the government in the UK.

5.2.2 Determinants of migrants" start up activity

Chapter Three highlighted the importance of investigating the differences in the determinants of natives and migrants entrepreneurship because their relative contribution to the local economy is different with the former being the main contributor and the latter being capable of becoming entrepreneurs and proportionately creating more new firms than the natives. In order to investigate the potential mechanisms through which regional characteristics affect entrepreneurial behaviour, I combined aggregated data at the regional level with individual level data at the neighbourhood level. Focusing at the lower neighbourhood level more accurately defines the relevant economic and social environment of the potential entrepreneurs which enabled to examine how individual and neighbourhood level factors combine to influence natives and migrants' decision to engage in start up activity. Three regional characteristics at the neighbourhood level were taken into account in this investigation: i.e. knowledge creation base, economic context and entrepreneurial culture. The East Midlands sample was split into three groups: natives, regional migrants and immigrants. Based on the findings, it is possible to draw comparisons between individual and neighbourhood characteristics hindering or facilitating natives, regional migrants and immigrants' decision to engage in start-up activities. To investigate the determinants of the probability to engage in entrepreneurial activity, a maximum likelihood probit is employed as an estimator on the pooled GEM database for the years 2006 to 2009 with 8,347 usable observations of the East Midlands region. The approach adopted in this chapter helped in enhancing our understanding of how individual

and neighbourhood level characteristics combine to affect entrepreneurial entry and, given that there have been numerous attempts by government to promote the creation of new businesses, taking spatial heterogeneity into account can also provide valuable knowledge for generating effective policies.

Chapter three provides empirical evidence that support the view that the three types of entrepreneurs; natives, regional migrants and immigrants are different and they are affected by different neighbourhood level factors. The variables employed to capture the effect of knowledge creation base and entrepreneurial culture on start-up turned up to be statistically significant and their effect overrides the importance of the economic context. This may indicate the importance of the regional composition of the adult population, particularly the region's entrepreneurial culture in terms of values, beliefs, legitimacy and institutions compared to the overall business environment. It might also suggest that specific neighbourhood features are more important in explain the probability of engaging in entrepreneurial activity of a particular group of entrepreneurs than other groups. Amongst the regional characteristics considered, the share of immigrants in the neighbourhood increases an individual's propensity to engage in start up activities. This finding is not only in line with those obtained from prior studies but also indicate the direct effect of the local environment in facilitating transition into start-up activities. In particular, it may indicate that immigrants as a group bring in unique knowledge and skills that may be related in one way or the other but not similar to that of other groups or unrelated to the exciting knowledge base. It may also suggest that immigrants are more capable of combining new knowledge with existing knowledge acquired from their home country and new homeland and it is this newly combined knowledge that forms an important source of innovation leading to the creation of new firms. In terms of the share of regional migrant, the author did not find empirical evidence to suggest that this factor affects an individual's probability to engage in start-up activities. This is not surprising since the author did not expect to find any significant differences in institutions such as universities, trade

associations, and others that offer technical, financial and networking services in all the UK member states which play a crucial role in the knowledge creation process. Therefore, regional migrants bring in knowledge that is similar to the existing knowledge base resulting in their effect as a group on start-up to be similar to that of the natives. Generally, the findings satisfy the proponents of the creative based theory who claim that a higher diversity in the neighbourhood population leads to the reproduction of diversity, higher variety which stimulate the creation of new firms.

In this chapter, the author also investigated how the time spend living in the region affects the probability of regional migrants and immigrants' propensity to be involved in start-up activities. It was expected that a recent regional migrant will be more likely to engage in start-up activities soon after arriving in the region and this will be followed by a decline as the number of years of living in the region increases. It was also argued that an immigrant, regardless of the time he/she has been living in the region, to be affected in the same way as a native. I found that the number of years spent living in the region has no effect on an immigrant's probability to engage in start-up activities. This may suggest that immigrants are a self selected group and, therefore they may voluntarily engage in start-up activities anytime they wish to. For regional migrants, evidence also suggest that time living in the region has no significant effect on the probability of a regional migrant to engage in start-up acclivities. Explanations for this phenomenon are similar to those provided for immigrants

In terms of the economic context, the empirical findings confirm that having a large group of individuals who know other entrepreneurs in the neighbourhood does not raise or reduce the likelihood of an individual to be involved in start-up activities. In terms of the interaction of a migrant and a group individuals who know other entrepreneurs in the neighbourhood, this chapter showed that the economic context influences a regional migrant and an immigrant in a different way. Chapter three provide evidence which

indicates that due to knowledge spill over, a regional migrant is more likely to engage in start-up activities than a native when both a regional migrant and an immigrant interacts with a group individuals who know other entrepreneurs in their neighbourhood. However, a regional migrant would not expect his/her propensity to engage is start-up to raise or reduce as the group individuals who know other entrepreneurs in the neighbourhood increases in size. Bearing in mind that immigrants possess unique knowledge and are capable of becoming entrepreneurs, it is the new knowledge they produce which they do not commercially exploit themselves but these ideas are exploited by regional migrants. As such, it is not surprising that the economic context has no significant effect on the propensity of an immigrant to be involved in start-up activity which suggest that he/she may voluntary engage in start-up activities.

Another interesting finding in Chapter Three relate to another important component of the regional characteristics, entrepreneurial culture. Empirical evidence indicates the importance of the regions' entrepreneurial culture in influencing individuals to engage in start-up activities. Evidence suggests that due to a favourable community's attitude towards entrepreneurship: a large share of small business owners in the neighbourhood increases the propensity of an individual to engage in start-up activity. Because culture is linked to the region's specific cultural determinants of entrepreneurship such as trade associations, consulting firms and industry chambers, these institutions play a crucial role in the knowledge creation process. This finding is consistent with those of previous studies which show that new firm formation rates are linked to the history of the regional characteristics (see Andersson and Koster 2011; Bosma and Schutjens 2009b; Fritsch and Wyrwich 2013; Parker 2009; Tamásy 2006). Hence I see the positive effect of a higher share of business owners in the neighbourhood (an environmental effect) on increasing the propensity of an individual to start-up a firm. Therefore, the author may conclude that in East Midland institutions, individual beliefs, norms and behaviour reinforce each other and

are responsible for shaping attitudes towards, and social acceptance of entrepreneurs and entrepreneurial activity.

In addition, Chapter Three also provide evidence which suggests that the interaction of a regional migrant with a group of business owners in his/her neighbourhood has a positive and significant indirect effect on a regional migrant's likelihood to be involved in start-up activities. However, for an immigrant, their interaction with a group of business owners in his/her local community does not have a significant effect on his/her likeliness to engage in start-up activities. Instead, this chapter showed that an immigrant's interaction with a group of business owners in his/her local community has a negative and significant indirect effect on his/her likelihood to engage in start-up activities The implication of this finding is that the relationship between a regional migrant or an immigrant and share of business owners in the neighbourhood, and start-up activities is not that straightforward. Given the difference in the direction of the magnitude of the effects of share of business owners on a migrant's probability to engage in start-up activities, there is need to take into account that there may be other informal institutional and local neighbourhood forces at play which at an individual level may reinforce or hinder the decision to engage in start-up activities. Therefore, I may explain the differences by distinguishing between individuals who have a concrete entrepreneurial behaviour from those who the author may think have the capabilities to become entrepreneurs in their local community but they are not involved in the start-up process. In this case, immigrants are less likely to engage in start-up activities, but that does not mean that they do not contribute effectively to the economic growth of their local community through the creation of new businesses. Bearing in mind that this study provided evidence which showed that in East Midlands, immigrants as a group, are more likely to engage in start-up activities compared to others and extant literature also indicate that they are over-represented in knowledge creating occupations (see Chiswick and Taengnoi 2007; Peri and Sparber 2011), suggest that they have higher levels of knowledge and skills and can make a significant indirect contribution to new firm formation

process. This chapter showed that an immigrant may voluntarily engage in start-up activities but would expect his/her likelihood to engage in start-up to decrease when the group of business owners they interact with in their neighbourhood increases in size due to the negative effect of competition. This finding suggests that there are fewer immigrants who commercially exploit their knowledge resulting in their knowledge spilling over and their new business ideas being commercially exploited others. Hence I find that a regional migrant is more likely to start-up a business than natives and they would expected their likelihood to engage in start-up to increase when the group of business owners they interact with in their neighbourhood increases in size. However, the spill-over effect is even strong when an immigrant only interacts with a group of business owners which again point to the very important role played by immigrants in acting as stimuli, that is, increasing the chances of a regional migrant to start up new business. This leads to conclude that both a regional migrant and an immigrant are active agents who contribute effectively to the economic growth of the local community and region through the creation of new businesses.

5.2.3 Determinants of women and men's entrepreneurship

Chapter Four goes beyond the individual entrepreneur and investigate the determinants of self-employment and ambitious entrepreneurship. Four groups of factors - human, social, financial capital and wealth - were used in this chapter to determine how they affect men and women's decision to become self-employed or ambitious entrepreneurs in East Midlands region in the UK. The literature review presented in chapter four highlighted the importance of examining the differences between the determinants of men and women's entry into self-employment and ambitious start-ups because their contribution to the local economy is different. Although prior studies have addressed issues such as women's formal labour participation, occupational segregation, pay differences between men and women and work/family responsibilities (see Duberley and Carrigan 2013; Marlow and

McAdam 2013; Wilson and Tagg 2010), relatively little quantitative research has been carried out in the UK to determine how founders characteristics facilitate or limit women and men's entry into self-employment and ambitious start-ups (Autio 2007). Moreover, making a distinction between the two forms of entrepreneurial entry does not only focus attention on those entrepreneurs who have growth ambitions but has some important policy implications. To investigate the determinants of the probability to engage in entrepreneurial activity, a multinomial logit is used as an estimator on the pooled GEM database for the years 2006 to 2009 and IMD database with 8,347 usable observations of the East Midlands region.

Chapter Four provides empirical evidence which indicates that being female does not lower or raise the likelihood of becoming self-employed but women were less likely to become ambitious entrepreneurs than men. The findings suggest that, the reasons for starting new firms may not be associated with perceived business opportunities or wealth attainment. Instead, individuals pursuing objectives associated with improvements in their employment conditions or income often prefer to start a new firm in an established industry, yet the main driver of individuals starting growth oriented businesses are desire for personal growth and self realisation. Here, the start-up reasons should differ by gender. In fact the negative motivational effect of occupational segregation forces individuals to seek employment and income improvements and this phenomenon is common among women, whereas self realisation motive is one of the main characteristics of men. Since the reasons to start growth oriented businesses are associated with the hope that such businesses will provide self realisation opportunities; and the fact that self realisation is a characteristic of men only, might explain the dominance of men among ambitious entrepreneurs. It could be that women have a realistic view of the challenges or difficulties associated with business growth; hence their propensity to become ambitious entrepreneurs is lower compared to men. As such, they make a deliberate and conscious choice of pursuing a route that has a fewer entry barriers. Accordingly, women who seek a

work-life balance may perceive that the easier way is to start a business that requires lower levels of capital investment, thus they tend to prefer self-employment. This explanation is consistent with the lack of significant differences for the likelihood of women and men to become self-employed: to the extent that women do not perceive barriers in access to resources, there should be no differences in the push motive between men and women in their propensity to become self-employed.

Chapter four also explored the impact of human capital on an individual's decision of becoming a nascent entrepreneur in this chapter. This chapter makes a distinction between general and specific human capital and hypothesised that both types of human capital will be associated with the likelihood of becoming self-employed and ambitious entrepreneur. It showed that effect of general and specific human capital on women and men's decision to engage in entrepreneurial activity differ. The results indicate that being female increases the likelihood of a woman to become self-employed but a female would expect to have lower preferences for being self employed as the levels of education increases. The findings suggest that it is more likely that highly educated women perceive that becoming self-employed leads to reduced income compared to the income from other employment options (see Evans and Leighton 1989b) or it may indicate that women have lower quality of formal education. It was also argued that life and employment background characterised by multiple career changes or disruptions will have a weaker positive effect on entrepreneurial entry. The results indicate that the effect of knowledge and skills on women's decision to become self-employed or ambitious entrepreneurs is insignificant. In other words, specific human capital does not provide any additional benefit to women in terms entry into self-employment or ambitious start-up. Although the life-course events and employment background of men and women differ, this has no significant effect on their experiences, beliefs and cognitive maps resulting in similar qualities of stocks of human capital which shapes their relationship with entrepreneurship. Moreover, this does not lend empirical support to previous studies that found that specific human capital is positively

associated with the discovery and successful exploitation of new business opportunities (Davidsson and Honig 2003).

In this chapter, I also investigated how social capital factors, measured by the share of business owners in the neighbourhood influence women's decision to become self-employed or ambitious entrepreneurs. I found that this factor has no significant direct and indirect effect on the probability of women to become self-employed or ambitious entrepreneurs. Based on this finding, it would be incorrect to infer that social capital exclusively influences men's entrepreneurial choices. Instead, what I find is that the magnitude of the effect of social capital on the likelihood of men and women to become self-employed or ambitious entrepreneurs is indistinguishable. This may suggest that the level of men and women's self-employment and ambitious start-ups is similar in East Midlands neighbourhoods. Therefore, the share of business owners in the neighbourhoods should have a similar impact on the likelihood of women and men to become self-employed or ambitious entrepreneurs. This does not support the theory which suggest that the environment exerts a significant influence on an individual's decision which has an impact on the entry choice and how businesses emerge or expand (Minniti 2004; Stinchcombe 1965).

The effect of wealth (housing) on the likelihood of men and women to engage in self-employment and ambitious start-up was also investigated in this chapter. It has been argued that there should be no significant differences between men and women on the positive effect of housing on the likelihood of becoming self-employed and ambitious entrepreneurs. However, if liquidity constrains exist, I expected to see a gradual increase on the impact of housing on self-employment and growth ambitions as I move across the different categories of housing, that is, from housing located in deprived areas to houses located in least deprived areas. This chapter showed that housing has no significant effect on the propensity of men becoming self-employed and ambitious entrepreneurs. Instead,

the chapter provide evidence which suggest that the effect of living conditions discouraged women who live in less deprived areas from becoming self-employed. However, this suggest that poor living conditions encouraged women who live in the 20% of the most deprived areas to become self-employed. In addition, this may reflect the existence of the opportunity cost effect were entry in self-employment is seen as a substitute until a woman is able to find suitable employment. In contrast, the effect of poor living conditions encouraged women who live in less deprived areas to become ambitious and discouraged women who live in the 20% of the most deprived areas to become ambitious entrepreneurs. In terms of ambitious entrepreneurs, the finding suggest that the behaviour of women at the middle of the housing distribution is different from women at the lower and higher end of the housing distribution and may indicate the differences in preferences and strategies employed by women given the inherently high risk associated with fast paced business growth. Moreover this is in contrast with the extant literature which posits that individuals with higher levels of wealth are more likely to take risks (Blanchflower and Oswald 1998; Evans and Jovanovic 1989; Evans and Leighton 1989a; Fairlie and Krashinsky 2012; Holtz-Eakin et al. 1994a; Wang et al. 2012), since women in the top end of the housing distribution are less likely to report the willingness to take a risky gamble of becoming ambitious entrepreneurs than women at the middle of the housing distribution. The fact that women in the top quintile of the housing distribution are less likely to take risk may reflect that women make a conscious choice when considering the expected future size of their businesses and business premises.

Although a significant effect of housing on women's decision to become self-employed and ambitious entrepreneurs was found, the pattern of the magnitude of the effect of housing on the likelihood of women to become self-employed did not show a gradual increase in the effect of housing as I move across the categories of housing. Therefore, this is not consistent with the existence of financial constraints. Instead, the findings suggest that even if some women are constrained from borrowing, these constraints are not statistically

significant and do not limit transition into self-employment or ambitious start-ups in the East Midlands region.

This chapter also provides evidence that in East Midlands region in the UK, men with higher levels of income were less likely to become self-employed and ambitious entrepreneurs than men with lower levels of income. The finding may indicate the existence of an opportunity cost effect which discouraged men with high levels of resources to become self-employed or ambitious entrepreneurs. This chapter also showed that financial capital is not a barrier to transition into self-employment and ambitious start-up for most women. This suggests that potential entrepreneurs can make voluntary attempts to transition between entrepreneurial activity and other formal employment options. Overall, this may be explained by the fact that lower levels of financial capital is required for starting a business since the majority of nascent entrepreneurs develop and start operating their business from home.

5.3 CONTRIBUTION OF THE THESIS

The persistent theme in this thesis has been that the existing literature on entrepreneurial activity is generally limited and underdeveloped. As such, there is no single theoretical model that can be used to explain the determinants of entry into entrepreneurial activity or determinants of growth ambitions. Prior literature indicates some developments in other disciplines that I draw upon in some of the chapters of the thesis to develop the theoretical framework of the thesis. However, the underdevelopment of the theory of entrepreneurship and its link with other disciplines such as economic geography, sociology, psychology and others provides a good opportunity for integrating different streams of literature which may result in the development of the field of entrepreneurship. Despite the importance of new firms and the amount of research undertaken in this field, the research on regional entrepreneurship activity is less developed. As a result, theoretical issues raised in this

thesis highlight some of the deficiencies in prior studies such as methodological problems, inconclusive results and limited number or choice of usable variables which points to the need for thorough quantitative investigation controlling for a wide range of individual and regional characteristics. This thesis takes into account these shortcomings in order to overcome the limitations of previous studies that have investigated the determinants of entrepreneurship.

Theoretical contributions – In general, the thesis contribute to the existing body of knowledge of the determinants of entrepreneurship by integrating various theories to develop the frameworks for the empirical investigation and to see how well they explain entry into entrepreneurial activity at the neighbourhood level with reference to the East Midlands region in the UK. The thesis provides a critical discussion of the existing theories of entrepreneurship and contextualises them at the neighbourhood level. This thesis argue that individual characteristics seem to be the major factor influencing entrepreneurial activity but also acknowledges the role of individual level resource endowments and regional characteristics in explaining the propensity of an individual to become a nascent entrepreneur. It also provides empirical findings that contribute to the entrepreneurship literature by answering some of the questions that have been raised in the literature and respond to scholars who have repeatedly called for studies to investigate the reasons and mechanisms behind the persistent variations in the regional start-up rate.

From a theoretical perspective: in Chapter Two (see Figure 2.1), the author developed a conceptual framework that integrated the resource-based theory of entrepreneurship (RBT) (Alvarez and Busenitz 2001) and the social network theory (Granovetter 1973) which is employed as a theoretical anchor for modelling relationship among variables. The formation of this conceptual model is based on number of concepts which are suggested by previous studies which examined the determinants of entrepreneurship (financial constraints, human capital, occupational choice, entrepreneurship capital theory). The final

model is an adaptation of the RBT and social network theory which is specifically designed for this chapter. Moreover, the results indicate that conceptual model is strong and explained 22.1% of the variance of considering entrepreneurship, intending to start-up a business, nascent entrepreneurial activity and newly established businesses. The results (Model 2) also suggest that this conceptual model explained 7.7% of the variance of considering entrepreneurship, intending to start-up a business, nascent entrepreneurial activity and newly established businesses. In summary, this study developed and tested a conceptual model that provides the basis for investigating the impact of resources and capabilities on different stages of new firm formation. In addition to variables used to capture the impact of resources – financial resources, formal education and being in employment – used in this investigation, the study extended the theory by taking into account the impact of capabilities, in particular the impact of human capital assets (entrepreneurial specific knowledge and skills) and the local environment (social networks) to capture the impact of some of the unique features of the East Midlands region focusing on the local business environment related factors. Here, the author see the main contribution as the development of the conceptual model and testing how the impact of both various individual level resources and local environment changes along the different stages of the entrepreneurial process looking at the lower neighbourhood level, which more accurately defines the relevant economic and social environment of the potential entrepreneur. This conceptual model plays an important role in informing design of future research and the academic community.

As discussed in Chapter three, the study developed a conceptual model that integrated the creative class (Florida 2002) and the knowledge base theory (Asheim et al. 2007) that serve as the theoretical framework for modelling the relationship between among various individual and neighbourhood level factors. Moreover, the conceptual model was formulated based on various concepts suggested by previous studies that examined the determinants of entrepreneurship, i.e. the density dependence model (Stinchcombe 1965)

social network (Granovetter 1973) and entrepreneurial culture theory (Audretsch and Keilbach 2004a; Beugelsdijk 2007). In order to gain a better understanding of the diversity of preferences of the different groups of the creative class calls for the need to re-theorise some parts of the creative approach. Hence, the final model proposed for Chapter three (see Figure 3.1) is an adaptation of the creative class and the knowledge base theory that reflected on the ongoing debate about the probability and feasibility of measuring the creative class (see Hansen et al. 2005; Peck 2005). This study makes several theoretical contributions. The author developed and tested a conceptual model that is based on the assumptions of recent critiques from academics (Boyle 2006; Glaeser 2005; Markusen 2006; Scott 2006) and provided empirical findings derived from this model that distinguishes between the direct and indirect impact of regional characteristics on natives and migrants' decision to engage in start up activity. This is an important contribution because it provides a conceptual understanding of community development models for evaluation of entrepreneurial activity in order to achieve sustainable regional growth. In addition, the author developed conceptual models that reflected the debate and findings found in critiques of the creative thesis and the results produced from these studies. This is another important conceptual contribution because the empirical results are integrated with the existing debate on the role of regional characteristics in facilitating or promoting entrepreneurship. Moreover the results and discussion led to the suggestion that the direct effect of regional characteristics on an individual's decision to engage in start-up varies, the local economic environment and entrepreneurial culture indirectly facilitate regional migrants to engage in start-up activities while discouraging immigrants from engaging in entrepreneurial activities. This enhances our conceptual understanding of the link between individual characteristics, neighbourhood characteristics and new firm formation. Therefore, Chapter Three contribute to knowledge because it extends this line of research by looking at the lower neighbourhood level, which more accurately defines the relevant economic and social environment of the potential entrepreneur.

Chapter four draws from recent contributions from the economics and organisational ecology literature, taking on an interdisciplinary approach to build a model of entrepreneurial activity which shows why women and men with similar levels socio-economic characteristics may end up having different levels entrepreneurial activity. The study employed the economic perspective on entrepreneurial occupational choice to serve as a theoretical backdrop to explain how differences in individuals' resource endowments, shapes an individual's decision to become an entrepreneur and models it as a utility maximizing career choice (Blanchflower and Oswald 1998; Douglas and Shepherd 2002). The formation of this conceptual model is based on insights from a number of concepts suggested by prior research that examined determinants of entrepreneurship (human capital, social network, density dependence and financial capital theory). In Chapter Four it has been argued that entrepreneurial activity tends to concentrated in certain areas because of the social environment and suggested that an individual's decision to engage in entrepreneurial activity may be influence by what others do particularly when faced with uncertainty and ambiguity. To my knowledge, in the UK, there is no study yet that has examined how possession and access to tangible and intangible resources may facilitate or constrain women and men's differently at a neighbourhood level. This study contribute to the filling of this gap by including the density dependence model into a model of entrepreneurship and provide evidence that the distinctiveness between male and female's self-employment and ambitious start-up manifest itself at the sub-national level, a neighbourhood level which is commonly ignored in the studies of entrepreneurship. Furthermore, the model suggests important implications regarding some of the policy initiatives or programmes designed to increase entrepreneurial activities.

Regarding methodological contribution, the thesis attempts to overcome some of the shortcomings of prior studies such as use of a single method, small sample and misspecification that affected previous studies. For example, previous studies have mainly investigated the determinants of entrepreneurship through the use of binary choice

models. In Chapter Two, it has been urged that creation of a new firm should be considered as a process rather than an outcome of a single binary choice and determinants of it may vary across the different stages of new firm formation. Chapter Two contributes to the literature by discriminating across five categories - no business ownership intention, considering, intentions, nascent and new businesses. To our best knowledge the stage of entrepreneurship approach has not been yet applied at the lower neighbourhood level, which more accurately defines the relevant economic and social environment of the potential entrepreneur. To investigate the determinants of all entrepreneurial stages jointly, I use an innovative approach, the multinomial logit model which allows for simultaneous testing of the effect of resources at both the individual and the regional level across the different stages of the entrepreneurial process. In Chapter Four, I spilt the sample into three groups; no business ownership intentions, self-employed and ambitious entrepreneurs. I investigate the determinants of the three groups jointly using a multinomial logit model. This method enabled to establish how individual level resources and the local environment facilitate or limit women and men's propensity to become self-employed or ambitious entrepreneurs differently. Finally in Chapter 3, to investigate the determinants of entrepreneurial activity, I use a probit model focusing on interactive effects. The approach taken and techniques employed have been rarely used and to our knowledge, have not been applied in previous studies of entrepreneurship at the regional level (sub-national level), i.e. the neighbourhood level. To overcome some of the methodological limitations of previous research, the thesis uses various econometric methods to test the same hypothesis. The thesis also contribute by developing empirical models which integrates aggregated data at the regional level with individual level data and testing in order to distinguish between individual and environmental effects. The techniques employed in this thesis are also used to avoid misspecification in econometric models applied. Although country level studies distinguish between environmental and individual effects, there is not much evidence of this approach applied at the lower neighbourhood level. It has been argued in this thesis that many of the previous

entrepreneurship studies are retrospective and relied on small business databases that do not include individuals who abandoned their efforts before starting a business and, therefore, suffer from hindsight bias and positive selection bias. To deal with these biases encountered by previous studies – I used a large dataset which contain a large sample of nascent entrepreneurs, that is, individuals who are actively involved in the new firm formation process.

The thesis also made contributions to the existing body of knowledge by providing evidence on the determinants of entrepreneurial activity the East Midlands region focusing at the lower neighbourhood level. This enabled the author to investigate the impact of the characteristics of the entrepreneur, individual level resource endowments and regional characteristics on shaping an individual's decision to engage in entrepreneurial activity and ambitious start-up. It shows that even in neighbourhoods characterised by a variety of economic problems such as high unemployment, possession and access to better resource endowments might influence the decision to become a nascent entrepreneur but the positive effect is very low. The findings of the thesis suggest that not only individual level resources such as education or financial capital matter for entrepreneurship as affirmed in the literature, but other factors related to the characteristics of the entrepreneur, capabilities and regional characteristics (for example share of existing business owners or share of migrants in the neighbourhood) play a very important role on the propensity of an individual to become a nascent entrepreneur as confirmed in the case of East Midlands. Use of various measures of characteristics of the entrepreneur, individual level resource endowments and regional characteristics is important in addressing weaknesses of previous studies such as misspecification.

In addition, the thesis also contributes to the existing knowledge base by making a distinction between different types of entrepreneurs. Using the GEM dataset, this thesis contributes to the literature by splitting the new firm formation process into five categories -

no business ownership intention, considering, intentions, nascent and new businesses - and show how the role of both various individual resources and local context changes along the different stages of the entrepreneurial process. This was not possible to investigate using other available small business datasets. Another contribution of the present thesis is the identification of individuals who are involved in the early stages of the entrepreneurial process and showing how individual and neighbourhood level characteristics affect entrepreneurial entry. Precisely, the interaction between the individual level factors and neighbourhood characteristics remains scarce in the entrepreneurship literature. It also contributes by making a distinction between self-employed and ambitious entrepreneurs and highlighted the gender difference in the determinants of entrepreneurial activity. It provides evidence which shows that the distinctiveness between male and female's self employment and ambitious start-up manifest itself at the sub-national level, i.e. a neighbourhood level, commonly ignored in the studies of self-employment and ambitious start-ups. This thesis also contributes to the ongoing debate on the importance of debt as a major source of financing for start-ups. The empirical findings challenge the proponents of the liquidity constrains theory (see Fairlie and Krashinsky 2012; Robb and Robinson 2014; Wang et al. 2012) and the assumption underpinning several UK policy initiatives (see DTI 2003; WETF 2009) by showing that possession or access to wealth is not a major barrier to entry into self-employment and growth oriented businesses for the majority of households (both women and men) in the East Midlands region. Concerning the positive and significant effect of wealth and women's propensity to engage in ambitious start-ups, the author argued that there was no sufficient evidence to suggest that financial constrains exist. It was argued that the "S" shaped pattern of the magnitude of the effect of housing on the likelihood of women to become self-employed reflected the differences in the behaviour of women and the existence of the opportunity cost effect. Were the impact of poor living condition encouraged women who live in the 20% of the most deprived areas to become self-employed and discouraged women who live in less deprived areas because of higher opportunity costs. In terms of

ambitious entrepreneurs, the behaviour of women at the middle of the housing distribution is different from women at the lower and higher end of the housing distribution and this suggests differences in preferences and strategies employed by women given the inherently high risk associated with fast paced business growth. Given that in the UK, there is no study to date that has examined how possession and access to resource may facilitate of constrain women and men's differently at a neighbourhood level. This thesis tries to fill in this gap in the literature.

This thesis responds to a specific issue of significant and persistent gap in start-up rates of small firms between regions in the UK which has not been subject to rigorous empirical investigation before. The three specific objectives of the thesis (i) determinants of an individual's decision to engage in the different stages of the entrepreneurial process, (ii) determinants of natives and migrants' decision to engage in start up activity and (iii) determinants of women and men's decision to become self-employed and ambitious entrepreneurs have not yet been systematically studied at the neighbourhood level. Although we already know that start-up rates of small firms differ across countries and within regions (see Allen et al. 2008; Kelley et al. 2011b; Levie and Hart 2010, 2011a; Marlow et al. 2012), these studies are descriptive and do not take into consideration important socio-economic factors. This thesis aims to fill this gap and to my best knowledge is the first to conduct a rigorous investigation of the determinants of entry into the entrepreneurial process at the neighbourhood level in order to enhancing our understanding of regional entrepreneurial activity. The thesis also provides several recommendation and proposals which may promote entrepreneurship and they are applicable to policy makers, academics and entrepreneurs. Specifically, this thesis contributes by comparing and contrasting the determinants of entry into different stages of new firm formation, regional migrants versus immigrants' start-ups and self-employment versus ambitious start-up. In summary, this thesis contributes to the existing body of knowledge by using a wide range of individual and neighbourhood level factors and

advanced analytical methods. It also suggest that empirical investigations of the reasons and mechanism behind the persistent variations in the regional start-up rates have been overlooked in previous studies which provide support for examining how individual and neighbourhood level characteristics combine to affect entrepreneurial entry and need for distinguish between environmental and individual effects.

5.4 MANAGERIAL AND POLICY IMPLICATIONS

Evidence presented in this thesis indicates that there are distinguishing characteristics which separate different types of entrepreneurs in terms of their preferences and ambitions. However, as discussed in previous chapters, determinants of entry into these different types of entrepreneurial activity vary. Therefore policy makers should take into consideration these differences when designing general and specific policy measures which support and encourage individuals to enter into entrepreneurship. The thesis identified several ways in which policy makers and academic can support nascent entrepreneurs directly or indirectly through specific intervention programs.

In terms of entrepreneurial stages, the empirical investigation of the interplay between resources and capabilities and entrepreneurial stages enabled identification of where the risk of discontinuity is highest. The findings and discussion presented in Chapter Two led to the suggestion that for individuals with low resource endowments, 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 endowments discouraged the majority of people in East Midlands from entering entrepreneurial activity due to the higher opportunity cost. This highlights the need for improving the education system. In addition to the generic measures required to promote the quality of education, the government should establish new policy and strategies that promote entrepreneurship training at different levels, i.e.

primary, high school and university, in order to promote the entrepreneurship culture of the youth and adult population. However, the findings provided in Chapter Two suggest that entrepreneurship training and business support services to be provided should emphasis on motivation and intentions so that those with resources become aware of entrepreneurial opportunities. Another important finding is that the impact of general human capital and human capital assets differ. The former have an ambiguous effect as illustrated in Figure 2.5, yet the latter has a clear positive effect on pre-start up and on advanced stages of the entrepreneurial process (see Figure 2.6). Thus, to encourage individuals with quality resource endowment to enter entrepreneurship, government can apply specific policy measures aiming at the development human capital assets such as provision of training, consultancy and technical assistance in order to equip them with the appropriate entrepreneurial skills which will facilitate them in identifying and exploiting new business ideas. However, this does not mean it is easy to identify potential entrepreneurs; therefore, the government should be cautious in identifying individuals with high levels of resource endowments and then targeting them in order to promote the development of a dynamic small business sector.

The empirical findings and discussion in Chapter Three clearly indicates the impossibility of using the creative thesis to formulate a one size fit all policy or strategy. Given that the percentage of the adult population who were engaged in total early stage entrepreneurial activity (TEA) in the East Midlands region, remained constant at about 5% when the share of the foreign-born in the region rose by about 3% between 2005 and 2010 raises questions about the link between share of the foreign born and the stable TEA. However, a simple and more nuanced understanding of how individual and neighbourhood level characteristics combine to affect start-up activities is provided. The findings and discussion in Chapter Three led to the suggestion that a direct link between one factor of the knowledge creation base (share of immigrants in the neighbourhood), regional entrepreneurial culture (share of business owners in the neighbourhood) and start-up

activity is present in the East Midlands region. In contrast, the direct effect of another knowledge creation base factor - share of regional migrants and the economic context on start-up activities is insignificant. The findings highlight the need for regional development agencies to formulate and implement strategies that creates a people friendly environment and a dynamic business environment. If the people friendly environment is achieved, many of the neighbourhoods in East Midlands will have good conditions that will attract more immigrants to settle in the region resulting in increases in the number of business start-ups. In terms of the economic context, the regional authority may apply specific policy measures that will allow developed areas to continue to grow, not at the expense of the less developed areas but this should be in combination with all the less developed areas in the region. Furthermore, the findings also indicate the presence of an indirect link between the economic context, regional entrepreneurial culture and migrants' start-up activities. The findings and discussion in Chapter Three suggest that the positive spill-over effect increases the chances of a regional migrant to engage in start-up activities when both the regional migrant and immigrant interacts with a group people who know other entrepreneurs in the neighbourhood, but will not expect his/her preferences for start-up to increase or decrease when the group of people who know other entrepreneurs increase in size. However, the positive spill-over effect increases the chances of a regional migrant to engage in start-up activities when an immigrant interact with a group business owner in the neighbourhood. Here, while a regional migrant will expect his/her preferences for start-up to increase when the group of business owners increase in size, an immigrant will expect his/her preferences for start-up to decrease. This reinforces the need to achieve a people friendly environment in all neighbourhoods and a good local business environment which calls for policy measures that promote continuous renewal and improvements in the conditions that have an effect on ever changing people friendly and local business factors. If the number of business continue to increase in the developed areas of the region, that will have a trickle-down effect on nearby less developed areas.

The empirical investigation of the link between human, social and financial capital and self-employment or ambitious start-up enables to identify why there is a persistent gender differences in entrepreneurial activities. The findings presented in Chapter Four suggest that the effect of human, social and financial capital on the decision to become self-employed and ambitious entrepreneur differ. However, the major implication of the findings is that women and men's decision to become self-employed or ambitious entrepreneurs is mainly driven a push factor of unemployment. The findings suggest that lower opportunity cost encourage men with lower levels income to become self-employed and ambitious entrepreneurs. In contrast, higher opportunity cost discouraged men with higher levels of household income to engage in self-employment or ambitious start-ups. The statistical impact of household income on women decision to become self-employed and ambitious entrepreneurs is almost absent. This will, however, call for the government to apply generic policy measures that emphasises on motivation which is extremely important, so that the majority of women and men with quality resources will be able to identify and successfully exploit new business opportunities. Another important finding is that the impact of general and specific human capital differs. The former have a clear negative effect on women's decision to become self-employed and no significant effect on ambitious start-ups, yet the latter have no statistical significant effect on both self-employment and ambitious start-ups. Therefore, for practitioners, the way to motivate women and men with quality resource endowment is to engage in self-employment and ambitious start-ups is to complement their endowment with entrepreneurial specific skills.

The findings presented in Chapter Four also suggest that there are gender differences on the impact of housing. The findings suggest that the effect of poor living conditions encourage women who live in the 20% of the most deprived areas to become self-employed. However, the effect of good living conditions discouraged women who live in less deprived areas to become self-employed. In contrast, the effect of good living conditions encouraged women who live in less deprived areas to become ambitious but

poor living conditions discouraged women who live in the 20% of the most deprived areas to become ambitious entrepreneurs. Yet the impact of housing on men's decision to become self-employed and ambitious entrepreneurs is insignificant. Therefore, government effort should be targeted towards improvements in the quality of housing especially those located in 20% of the most deprived areas. Doing so implies that the government policy is oriented towards the promotion of ambitious start-ups since they are crucial in generating employment and income.

5.5 LIMITATIONS

In this thesis, I acknowledge that the present research has some limitations that might have affected its output. Therefore, the limitations and context of the research should be taken into account when considering the findings and recommendations of the thesis. Limitations of the thesis are mainly related to the availability of data which provides good opportunities for further research into areas that are beyond the scope of this thesis.

The GEM dataset used in this thesis is cross sectional and the main limitation is the unavailability panel data and inability to perform a dynamic analysis. This prevented us from testing for time variations and examining the likelihood of transition from: (i) employment to any stage of the entrepreneurial process or from one stage into the next stage of the entrepreneurial process, (ii) no economic activity to start-up process or employment into start-up process and (iii) employment to self-employment and ambitious start-up or from self-employment to ambitious start-up. Moreover, use of panel data would have enabled us to test the impact of the same set of factors on an individual's decision to engage in entrepreneurial activity and growth ambitions over time and how entrepreneurs respond to changes in their local environment. Due to the questionnaire design, the GEM dataset does not include information about previous work experience of respondents, individual income level or dimensions wealth and, therefore, I could not test their effect on

different types of entrepreneurs. Furthermore, the dataset does not contain information on alternative qualitative measures of the economic and social environment which could enable us to test the effect of various regional characteristics on different types of nascent entrepreneurs. Another limitation which should be kept in mind is that of the context of the research, and should be taken into account when considering the findings and recommendations of the thesis. Given that regions are not homogenous units implies that the results and recommendations may not be applicable to other regions.

These limitations provide insights for future research. In particular, the need for more in-depth studies at either the local or regional level to determine if and what other factors in addition to those considered in this thesis that affect different types of entrepreneurs decision to engage in entrepreneurship. Given that the present thesis addressed the probability of engaging in entrepreneurial activity from a static view, therefore, the challenge for future research is to carry out dynamic analysis in order to enhance our understanding of the determinants of entrepreneurship at either the local or regional (sub-national) level. For example, investigation of determinants of women versus men entrepreneurial activity might benefit from using factors related to the motives of engaging in start-up activities which might enable researchers to make a distinction between female and male self-employment versus ambitious entrepreneurship. As such, a dynamic analysis would allow examining the impact of motives on the decision to engage in self-employment or ambitious start-up for the same individuals and also enables to investigate changes in transition of individuals to self-employment and ambitious start-ups over time.

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