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**Entrepreneurship within Urban and Rural Areas
Individual Creativity and Social Network**

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Abstract:
The entrepreneurial dynamics within urban and rural areas are often assumed to be very different. This study explores the importance of individual creativity and the social network in both places regarding the probability of becoming an entrepreneur and of surviving the crucial three years after start-up. The results are based on longitudinal register data combined with a questionnaire survey from 2008, utilizing responses from 1,108 first-time entrepreneurs (out of which 670 survived) and 420 non-entrepreneurs (without previous entrepreneurial experience). Creativity is only found to lead to start-up in urban areas but it does not influence the chances of survival in any of the two areas. On the contrary, the social network matters particular in rural areas. By combining the person and the environment in the research design, common entrepreneurship beliefs are questioned which opens up for region specific policy initiatives..

Keywords: Entrepreneurship; Social Network; Creativity; Urban; Rural; Economic Geography

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Acknowledgements

Introduction

Entrepreneurship has been recognized as fundamental to regional economic development, and it has been suggested that entrepreneurship policy should pay more attention to the various dimensions of different regions (Tamásy, 2006; Aoyama, 2009). Understanding who becomes entrepreneurs, and more importantly, who achieves success with the new venture across different geographical settings is important to understand economic prosperity. Most entrepreneurship studies have been carried out in urban areas in which entrepreneurship flourishes due to localization effects, urbanization effects and the 'creative class' argument (Glaeser et al., 2010). The superiority of larger cities in producing advanced economies has been acknowledged since the time of the ancient Greeks to the time of the Italian city-states (Botero, 1588), and this does not seem to be different today (Glaeser, 2011). The higher economic performance of urban areas has been explained by a wide variety of theories ranging from the division of labour (Smith, 1776) to capital accumulation (Marx and Engels, 1848). Within the entrepreneurship literature, some researchers have put forward the thesis that, with a few exceptions, entrepreneurship is an urban phenomenon (Acs et al., 2011). Unfortunately, the increasing interest in entrepreneurship in cities has left rural areas under-researched.

Individual level studies exploring who becomes an entrepreneur, and who achieves success with the new venture, can be categorized to some extent into studies of identity (e.g. traits and values), knowledge (e.g. education and work experience) and networks (e.g. strong and weak ties). This uses the three categories of entrepreneurial means introduced by Sarasvathy (2008): (1) Who they are, (2) What they know, and (3) Whom they know. However, there has been little research done allowing for the role of these means to be conditioned on the environment, including the geographical setting. Although studies comparing the means of urban and rural entrepreneurs do exist, few studies include the control groups necessary for exploring the two main questions above. That is, they do not include a group of non-entrepreneurs or entrepreneurs behind an unsuccessful business. Exceptions include Babb and Babb (1992) looking at psychological traits and Bauernschuster et al. (2010) looking at personal contacts. Babb and Babb (1992) find no major differences in the psychological traits that differentiated founders and non-founders in urban and rural areas, respectively, except for urban founders expressing higher risk-taking and tolerance of ambiguity than non-founders. Bauernschuster et al. (2010) find the number of club memberships to be more important for entry into self-employment in peripheral areas, as increasing club memberships lead to stronger ties in more dense areas.

In the same way, this study takes on the view that important contributions to the literature can be made by investigating the role of individual means in different environments since few studies have tried to do so (Thornton, 1999; Hisrich and Drnovsek, 2002; Sarasvathy, 2004). More specifically, this research explores the role of individual creativity and the social network for the probability of becoming an entrepreneur and subsequent surviving "the valley of death". The latter refers to the crucial three years after start-up where half of the newly founded ventures close down (Mata and Portugal, 1994; Dahl et al., 2009; van Praag, 2005); after that the survival curve flattens. Creative individuals could be more or less likely to become entrepreneurs in urban areas because of more opportunities for entrepreneurship, but also more opportunities for intrapreneurship, in these areas. Regarding social network, the more supportive environment in urban areas might, on the one hand, reduce the need for social network support but, on the other hand, increase the need for support because of the more competitive environment. This study utilises four measures of individual creativity and the social network, respectively. However, it does not go further into the debates: 1) Is creativity an inborn personal trait or a behaviour that can be learned? And 2) Is social network a result of personal extroversion, networking behaviour or the success of their business? Shedding light on the role of these individual means for entrepreneurship in urban and rural areas is useful for entrepreneurship education and entrepreneurship policy.

Using a unique Danish dataset of 1,528 individuals, the present research utilises four main groups in the analyses: first-time entrepreneurs in 2004 and non-entrepreneurs (without previous entrepreneurial experience), in both urban and rural areas. The general finding in this study is that there are a few significant differences between what makes an entrepreneur, and, furthermore, a successful entrepreneur, in urban and rural areas regarding individual creativity and the social network. However, some of these differences could be considered as caveats for further research in the field. Creative individuals have a higher probability of establishing a business if they live in an urban area, but not if they live in a rural area. This finding strengthens arguments of the relationship between creativity and larger cities (Florida, 2010; Glaeser, 2011). However, when looking at other indicators related to creativity – such as work motivation, entrepreneurial traits, and risk willingness – the results support the general thesis that more creative individuals tend to start businesses regardless of the geographic setting. The probability of failure is always higher in urban areas, and creativity indicators are not found to be important for new venture survival. Regarding social network indicators, frequent contact with more groups and en-

couragement from family and friends are found to be important for start-up in both urban and rural areas, but when it comes to survival, the social network is only important in rural areas.

Why the entrepreneurial environment is different in urban and rural areas will be explained next. Then the remainder of the paper is divided into four main parts. First, the concepts of individual creativity and the social network will be discussed since these are assumed to be significant factors in explaining new venture entry and performance. Furthermore, is argued for the possible different roles of these individual means in urban and rural areas. Second, the concept of urban and rural will be discussed in the methodology for the purpose of creating an indicator for the empirical analysis. Third, an analysis of the results and robustness checks are conducted followed by discussion and conclusion.

Theory

Entrepreneurship in urban and rural areas

As introduced above, geographical location plays a significant role in explaining entrepreneurship. However, the location per se (e.g. choosing to be in an economic hub), can hardly be disentangled from people's presence. Today, empirical evidence suggests that even though such places have higher competition (Sorenson and Audia, 2000), human proximity (i.e. population density, population growth, and population size) increases entrepreneurship rates (Reynolds et al., 1994; Shane, 2003; Sternberg, 2009).

Many studies attempt to explain why the entrepreneurship environment differs in urban and rural areas. Geographical economics has expanded the research on transportation costs and economies of scale to explain the better performance of urban centres even though entrepreneurs themselves were omitted (Krugman, 1991). Regarding the environment, research shows that rural entrepreneurs lack certain benefits related to *"low density of population and therefore a low density of most markets, and greater distance to those markets as well as to information, labour, and most other resources"* (Malecki, 2003, p.201). Also places with higher population density offer entrepreneurs (and potential ones) more "observation possibilities" before engaging in new projects (Shane, 2003).

Much research has explained the higher performance of entrepreneurship in cities by citing improved availability to externalities (Sternberg, 2009). These

include two main research veins. The first, called the Marshall-Arrow-Romer externalities, focus on intra-industry knowledge flows or knowledge flows within the same industry. The second, called Jacobs' externalities, explain how small businesses in cities (in particular) exchange knowledge across diverse industries (Sternberg, 2009).

The higher education of entrepreneurs and their employees is a reason for higher urban entrepreneurial performance (Shane, 2003). Large universities tend to be in cities providing not only formal education but creating knowledge spillovers that entrepreneurs can benefit from (Saxenian, 1994; Cooke and Schienstock, 2000). The process of spillovers could also be linked to the necessity of face-to-face contact in certain kinds of activities (Jaffe, 1986). Innovation scholars also point out the importance of proximity in entrepreneurial dynamics due to the mode of innovation based on 'doing, using and interacting' (Jensen et al., 2007).

In a review of the literature, Glaeser et al. (2010) cite higher returns, greater supply of ideas, more resources, and differences in the local culture and policies as reasons why entrepreneurship is superior in urban areas. They sum up by saying: *"entrepreneurship can be part of a virtuous cycle where entrepreneurial activity leads to the circumstances that foster further activity. Of course, the flip side of this conclusion is that the absence of entrepreneurship can lead to a vicious cycle."* (Glaeser et al., 2010, p.4) All in all, while the literature points out that urban areas are more supportive, but also more competitive, environments for entrepreneurship, few studies explore how this affects the role of individual means in explaining new venture start-up and performance.

The next two sections will discuss the significance of individual creativity and the social network in relation to entrepreneurship. Studies on the former has been part of the personal traits approach in entrepreneurship which has played a dominant role in the literature (Parker, 2004; Cromie, 2000). However, the paper and pen measures of personal traits have not resulted in robust results, likely contributing to the change in focus from psychology to ego-centric network studies (Parker, 2004; Brüderl and Preisendörfer, 1998; Aldrich and Zimmer, 1986).

Individual creativity and entrepreneurship

In the last decade, the narrative of creativity and entrepreneurship has been dominated by the theories of the 'creative class' (Florida, 2002). Even though

critics of these are ad infinitum (Scott, 2006), the concept has many interesting notions for entrepreneurship (Boschma and Fritsch, 2009; McGranahan et al., 2010). However, it is important to keep in mind that the taxonomy of the creative class is not necessarily related to entrepreneurs and that the creative class argument is geared towards urban areas. Scott (2006), among many others, has also cited the importance of creativity in entrepreneurship as related to cultural production, and he also primarily focuses on large metropolitan areas. This study does not use the term of creativity popularised by Florida or Scott but as a personal trait or behaviour labelled individual creativity.

There is an abundance of research exploring the role of personal traits, behaviours, values, and attitudes for new venture start-up and subsequent performance (Cromie, 2000; Gartner, 1988). Numerous traits such as risk willingness, tolerance of ambiguity, feelings about locus of control, need for achievement, desire for independence or autonomy, and creativity or innovativeness have been included in these studies (Parker, 2004; Cromie, 2000). Despite this, empirical studies trying to verify that entrepreneurs possess certain traits are ambiguous. Exceptions are Caird (1991) and Cromie and O'Donaghue (1992) who find that entrepreneurs are different from other groups regarding five of the most common traits in the literature, including creativity.

Creativity or innovativeness is included based on the assumption that the entrepreneurs, as outlined in Cromie (2000), have to have the ability to recognize and realize new opportunities, look beyond conventional procedures, combine existing ideas and resources in different ways, and obtain experience through experimentation and trail and error. Furthermore, an entrepreneur is someone who thinks in non-conventional ways, challenges existing assumptions, and is flexible and adaptive regarding problem solving[1] (Cromie, 2000). Chen et al. (1998), looking at entrepreneurial self-efficacy (i.e. an individual's belief of her own capabilities regarding different entrepreneurial tasks), find that business founders scored higher than non-founders regarding innovation self-efficacy. Also, Koh (1996) finds innovativeness to be higher among entrepreneurially inclined students compared to those who are non-inclined. As for the differences between successful and unsuccessful entrepreneurs, Utsch and Rauch (2000) find that innovativeness is a mediator between achievement orientation and venture performance; innovativeness has a positive and significant effect on both profit and firm growth.

A major problem in empirical studies using the personal traits approach is

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[1]This is in accordance with (and likely because of) Schumpeter's theory of the entrepreneur.

the categorisation and distinction between different traits (Cromie, 2000). For example, it is likely that individuals with a great need for independence also display a great need for achievement, creativity or innovativeness, and willingness to take risks because high independence allows these individuals to behave in accordance with these other traits. Indeed, Utsch and Rauch (2000) find innovativeness to be significantly correlated with all other included traits, except locus of control.

Another indicator used to gauge an individual's creativity or innovativeness has been an individual's intrinsic (and extrinsic) motivation since intrinsic motivation results in high-quality learning and creativity (Ryan and Deci, 2000). Intrinsically motivated individuals can act for the fun or the challenge of the endeavour while extrinsically motivated individuals act because of external prods, pressures, or rewards. Likewise, intrinsic and extrinsic work values are related; the former is related to the work tasks themselves (e.g. the importance of work for strengthening skills and abilities) and the latter is not (e.g. the importance of work for providing a high income) (Kalleberg, 1977). Hence, work motivation or values could serve as good proxies for creativity instead of trying to construct a direct measure of creativity.

This study investigates individual creativity and proxies for individual creativity for the likelihood of becoming an entrepreneur as well as becoming a successful entrepreneur in rural and urban areas. Hence, the possible different roles of individual creativity in these two areas are discussed in the following.

More opportunities for entrepreneurship in urban areas, as outlined earlier, could result in creative individuals only being more likely to start up in these areas. On the contrary, if also assuming more employee opportunities for creative individuals in urban areas (e.g. intrapreneurship), creative individuals could be less and more likely to start-up in urban and rural areas, respectively. As for survival after start-up, it is reasonable to assume that individual creativity is positively related to venture survival. Especially for entrepreneurs, it is important to deal with the uncertainty of the future by turning to effectual reasoning instead of causal reasoning (Sarasvathy, 2008). This involves being able to adapt the original business plan and the goal of business along the way as the entrepreneurial means can be used to create many different businesses. Hence, creative individuals are more likely to use effectual reasoning. However, it can be argued that individual creativity will have a larger effect in urban areas as a result of greater competition.

In this study, four indicators for creativity have been created: creativity or innovativeness as a personal trait (dummy), higher intrinsic motivation than extrinsic motivation (dummy), risk willingness (continuous) and one indicator covering five other personal traits associated with entrepreneurship (discrete). The operationalisation of these indicators can be seen in Table 8. This section has discussed creativity as an alleged crucial factor for entrepreneurship. The next section discusses the second factor studied in this paper, namely the social network.

Social network and entrepreneurship

A critique of the individual characteristics approach to understanding entrepreneurship is that the decision to become or remain an entrepreneur can not be explained by looking solely at the individual (Granovetter, 1985; Aldrich and Zimmer, 1986). In other words, *"Persons do not make decisions in a vacuum but rather consult and are subtly influenced by significant others in their environments: family, friends, co-workers, employers, casual acquaintances, and so on." (Aldrich and Zimmer, 1986, p.6)*

The benefits the entrepreneur can reap from a social network are often related to motivation and access to valuable resources like information, customers, suppliers, capital and labour (Parker, 2004; Brüderl and Preisendörfer, 1998; Aldrich and Zimmer, 1986). The motivation to become an entrepreneur, stay an entrepreneur, or achieve high growth with the new venture are all assumed to be positively related to having (former) entrepreneurs in the family or among friends (Bosma et al., 2011). These role models can provide access to the necessary resources, provide realistic insight into the values, abilities and skills important for entrepreneurship, and provide encouragement given the emotional ups and downs entrepreneurship can lead to. Providing moral support, of course, is not dependent on these individuals having entrepreneurial experience.

The importance of family and friends are empirically supported by Sanders and Nee (1996) who look at immigrant self-employment status, Hanlon and Saunders (2007) who study key supporters in achieving business goals, and Brüderl and Preisendörfer (1998) who look at business survival and growth. Furthermore, Nanda and Sørensen (2010) find that individuals are more likely to become entrepreneurs if their parents or former work colleagues have entrepreneurial experience while Davidsson and Honig (2003) find the likelihood of being a nascent entrepreneur higher for individuals with entrepreneurial parents, entrepreneurial friends or neighbours or if family and friends have encouraged

entrepreneurship.

Ego-centric social network studies of entrepreneurial start-up and performance often divide network ties into strong ties and weak ties, depending on the degree of trust between persons (Dubini and Aldrich, 1991). Strong ties are often simplified to be spouse, parents, other relatives, and close friends while weak ties are business partners, (former) employers and co-workers, and other acquaintances (Brüderl and Preisendörfer, 1998). On the one hand, a social network mainly consisting of strong ties can be efficient for obtaining resources given the high degree of trust. On the other hand such a network can be inefficient given the assumed low diversity and high density, i.e. the people share the same characteristics and contacts outside of the network. In addition to the nature of network ties, the size of the social network is the most common measure of an entrepreneur's potential network opportunities (Burt, 2000). One empirical study that includes many network characteristics in explaining new venture growth (sales, profits, and employee growth) is Ostgaard and Birley (1996). They find that having colleagues/partners in the personal network positively affects all performance measures while more profitable entrepreneurs are found to have a denser (less diverse) personal network. However, the personal network size and frequency of communication with the personal network are not found to influence venture performance.

Studies of social network characteristics often demand a more qualitative approach and are, thus, less appropriate for quantitative analyses. Hence, many quantitative studies include simple indicators or proxies for social network, e.g. entrepreneurs among family/friends, marriage status and club/organization membership.

Concerning the different characteristics between urban and rural populations, the work of Granovetter and some of his followers offers some insights. Granovetter (1985) argues that more economic opportunities are created through weak ties. Researchers later posited significant differences in urban and rural areas claiming that individuals in rural areas depend more on their network for learning processes, and individuals in less populated areas often have stronger ties compared to individuals in urban areas who have weaker ties (Benneworth, 2004; Morris et al., 2006). These different network structures may affect the entrepreneurial dynamics in urban and rural areas. Bauernschuster et al. (2010) find that club membership is related to self-employment but with a twist. Memberships are more important in peripheral areas as they lead to closer ties because of low population density.

To sum up, regarding the start-up decision and subsequent survival of a business, support from the social network is expected to be important in both urban and rural areas. According to Burt (2000), the social network is crucial for entrepreneurs because individuals compete for the same resources necessary for business start-up. However, where the social network effect is strongest could be ambiguous. On the one hand, the social network effect could be larger in rural areas as a consequence of the less supportive entrepreneurial environment. On the other hand, the effect could be larger in urban areas given the more competitive environment.

Four social network indicators are used in this study in analysing new venture start-up and survival in urban and rural areas: the number of different groups with frequent contact (discrete), social network size (continuous), and start-up encouragement from family and friends (dummy), respectively. The operationalisation of these indicators can be found in Table 8.

Methodology

This section contains four subsections dealing with: 1) The sample of about 1,500 respondents, 2) The specifications of the survey, 3) The conditional variable: urban and rural areas, and 4) The independent variables: the person, firm and circumstances.

Concerning the source of the data, IDA (Integrated Database for Labour Market Research) contains longitudinal data on the entire population of individuals and firms in Denmark from 1980 onward and each individual can be connected to the firm they worked for in any specific year. Furthermore, the main founder behind every new business in Denmark from 1994 onward can be found in the entrepreneur register. IDA is used for the sampling of the questionnaire survey conducted in 2008 and, subsequently, to provide background information about the respondents.

The sample: Entrepreneurs and non-entrepreneurs

The sampling for the survey was based on information from 2004 which was the latest year available in IDA at the time. In Table 1 the size of the population, sample and response population can be seen for the two strata used in this paper: first-time entrepreneurs in 2004 (the entrepreneurs) and non-entrepreneurs

before and in 2004[2]. The individuals in both groups are in the age range 15-66.

The entrepreneurs are defined by meeting the following criteria: they started an incorporated or unincorporated business with "real" activity as their main occupation in 2004. For the business to be "real" active in a given year, the work effort and/or earnings (calculated from turnover) have to be above a certain industry specific level which for businesses started in the same year is set to half. Importantly for this study, businesses from the primary sector (and the energy sector) are not included given the level of government intervention in these sectors.

	Number of individuals in:		
Strata	Population	Sample	Respondents (rate)
Entrepreneurs	7,250	4,389	1,384 (32%)
Non-entrepreneurs	2,712,525	1,514	606 (40%)
Total	2,719,775	5,903	1,990 (34%)

Table 1: Population, sample, and response population.

From Table 1 it is evident that the entrepreneurs in 2004 are largely over-sampled in the survey. The purpose of this study is to investigate the different dynamics in urban and rural areas regarding: (1) The probability of becoming an entrepreneur, and (2) The probability of surviving as an entrepreneur. Hence, the disproportionate stratified sampling on the dependent variable (entrepreneur versus non-entrepreneur) does not create a problem when applying logistic regression for the analysis (Allison, 1999).

The survey: Survival, creativity, and network

The time-lag between the sampling data (2004) and the survey data (2008) as well as the limited time period covered by IDA (1980/1994-2004) make it necessary to control for entrepreneurial status from the questionnaire. In the questionnaire respondents were asked: 1) If they are an entrepreneur, 2) If they are not an entrepreneur but have previously been one, or 3) If they are not an entrepreneur and have never been one[3]. Together with the IDA information, the response to this question is used to create an indicator of survival from 2004 to 2008; hence surviving the first three years after start-up also known as "the valley of death"[4]. Other measures of entrepreneurial success were considered,

[2]Two other strata were included in the survey but not in this study: experienced entrepreneurs in 2004 and former entrepreneurs in 2004.

[3]57 non-entrepreneurs were excluded because they could have been entrepreneurs before or after the time period covered by IDA.

[4]Survival is indicated from the question of entrepreneurship status in the 2008 questionnaire. Therefore, surviving entrepreneurs could have started another business that is still

e.g. difference in pre- and post-start-up earnings or growth in sales, profits, or employees, but for simplicity only survival was used. This decision was based on vast studies showing that entrepreneurs are often unable to achieve an income from entrepreneurship equal to or above the income from working in an established business (Parker, 2004; Hamilton, 2000); yet entrepreneurs are often more satisfied with their work than wage earners (Hundley, 2001; Blanchflower and Oswald, 1998). Hence, survival enables entrepreneurs to enjoy high work satisfaction and is at the same time a prerequisite for growth.

From the questionnaire, creativity and network indicators are also created for all respondents. The construction of these can be seen in Table 8. The individual creativity indicators used in this study encompass a direct indicator, i.e. creativity as a behaviour or personal trait, as well as proxies: the importance of intrinsic compared to extrinsic work values from the sociology literature, an aggregate indicator of common entrepreneurial traits from the psychology literature, and an indicator for the degree of risk willingness from the microeconomic literature. The ego-centric social network indicators include the number of different groups with frequent contact, the social network size, and start-up encouragement from family and friends, respectively. Knowledge indicators are only included indirectly as age and education are part of the control variables in this study (see Table 8-10).

One problem of using survey data for quantitative analysis is missing values. In the case of non-response for an item, the respondent is dropped in the regression, which is problematic when including several variables (if the non-responses for each item are distributed among different respondents). This is not a problem in this study, but in order to have the same number of observations in the regression models, the few missing values for each variable are imputed using regression imputation with gender, age, education, personal income, and household wealth as explanatory variables; see Levy and Lemeshow (2008). The number of imputed observations for each variable can be seen in Table 8. Only for the network size variable, the number of imputed observations is high (13%), likely due to the complexity and sensitivity of the question.

The conditional variable: Urban and rural areas

The concept of urban and rural is intricate because both of them are social constructs (Anderson, 2000). Defining an urban area can be done as *"a function*

active in 2008, and non-survivors could have successfully sold their business before 2008. However, only a few, if any, of the respondents are assumed to fall into these two categories based on the descriptive statistics in Nielsen and Sarasvathy (2011).

of (1) population size, (2) space (land area), (3) ratio of population to space (density of concentration), and (4) economic and social organisation." (Weeks, 2008, p.354). In the studies that have been referenced in this paper, researchers use different methodologies and standards. Overall, the use of different measures for each country and region and for what constitutes rural and urban areas are recognised. As in many other studies, while a dichotomy between urban and rural places is proposed, a large scale of gray area exists. In this study the four functions proposed by Weeks (2008) are directly and indirectly taken into account.

As mentioned above, the main challenge is defining the "gray areas". In the majority of comparative studies, researchers use a figure (e.g. 50,000 inhabitants) to separate rural and urban areas. If someone is an entrepreneur in an administrative unit with 50,000 inhabitants that person becomes an urban entrepreneur. However, if someone lives in a municipality with 49,999 inhabitants then that individual becomes a rural entrepreneur. While this approach is practical for statistical purposes, it can be somewhat biased. In order to better differentiate the rural and the urban areas, this study uses a more conservative approach and creates a semi-urban area. These semi-urban areas are removed from this study. Such gray areas correspond to the third and fourth largest cities in Denmark, Odense and Aalborg, both of which had populations between 150,000 and 200,000 inhabitants in 2004. Following this conservative approach, the surrounding municipalities of within 20 kilometres (centre-to-centre) are included. There are only nine of the remaining municipalities that have over 50.000 inhabitants, and they are also categorised as semi-urban areas together with Odense and Aalborg. As a result, the definition of an urban inhabitant used in this study is a person living in an area within commuting distance to the two significantly largest cities in Denmark: Copenhagen and Aarhus. Figure 1 shows the 271 municipalities in Denmark and the 37 and 16 municipalities that are connected to the Copenhagen and Aarhus areas, respectively. These urban, or "metropolitan", areas had 1,605,943 and 475,810 inhabitants, respectively.

Denmark had a population of just below 5,5 million in 2004. There are around two million inhabitants living in rural and urban areas, respectively, and around one million people living in the semi-urban areas. That is, if an individual lives in an area of more than nearly 500,000 inhabitants, the person is considered urban. If an individual lives in an area of less than 50,000 people, the person is considered rural. The areas in the middle – those determined as being semi-urban – account for less than 20% of the total population and remain out of the study. Even though, this is considered to be an appropriate approach,

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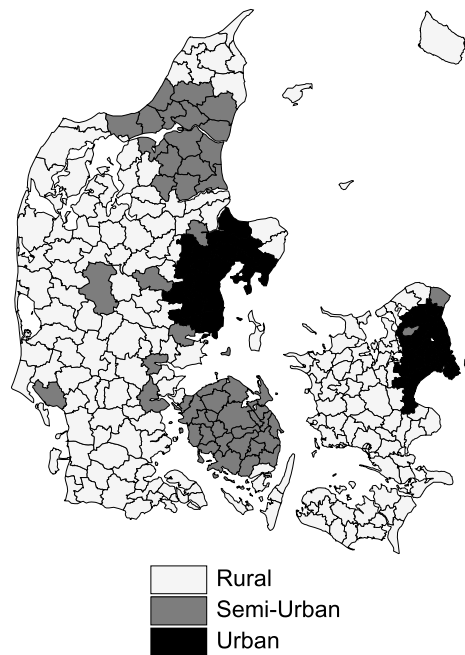
Figure 1: Categorisation of Danish Municipalities. The black areas are urban areas (the eastern one represents the Copenhagen area and the western the Aarhus one). The gray areas represent the semi-urban areas (the northern one comprises Aalborg and its surroundings, and the southern one the Odense area). The rest are rural areas.

robustness checks are conducted to see if and how changes to the urban and rural area definition changes the main findings. First, the semi-urban areas are included in the population of urban and rural areas, respectively, and, second, the binary variable is replaced with a continuous variable: the number of individuals living in the municipality. A similar approach has been used by Dahl and Sorenson (2009). As will be evident later, the main findings seem to be robust to these changes.

Table 2 shows that out of the 1,108 entrepreneurs, 615 (56%) live in urban areas and 493 (44%) in rural areas. For the non-entrepreneurs these numbers are 220 and 200 in urban and rural areas, respectively. Table 3 shows the number of successful and unsuccessful entrepreneurs measured by survival. In urban areas, 351 out of 615 entrepreneurs become successful (57%) while 319 out of 493 rural entrepreneurs do (65%).

Independent variables: Person, firm, and circumstances

Table 9 and 10 depict descriptive statistics of the categorical and continuous variables, respectively, for the four groups: urban and rural entrepreneurs and

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	Entrepreneurs	Non-entrepreneurs	Total
Urban	615 (56%)	220 (52%)	835
Rural	493 (44%)	200 (48%)	693
Total	1,108 (100%)	420 (100%)	1,528
Excluded	276	129	405

Table 2: The individuals used for the analysis.

	Successful	Unsuccessful	Total
Urban	351 (57%)	264 (43%)	615 (100%)
Rural	319 (65%)	174 (35%)	493 (100%)
Total	670 (60%)	438 (40%)	1,108 (100%)
Excluded	157	119	276

Table 3: The entrepreneurs used for the analysis.

non-entrepreneurs. Further descriptions of the construction of the main indicators can be found in Table 8.

Table 9 shows personal demographics such as gender, age, foreign origin (non-Danish), and marital status as well as two variables covering the circumstances prior to potential start-up in 2004. These indicate whether or not the individual has moved between an urban and rural area in the period 1980-2004, and whether the individual has been unemployed at any time in 2003. The main independent variables in Table 9 are dummy variables for individual creativity, intrinsic motivation, and start-up encouragement from family and friends, respectively. The last two indicators in Table 9 only concern the entrepreneurs: business industry category and business ownership type.

The personal demographics chosen for this study coincide with the extensive entrepreneurship research carried out by Buss et al. (1991), Westhead and Wright (1999), and Lee et al. (2004). Concerning moving between urban and rural areas, the vast majority of people do not move as is supported in Weeks (2008) and Dahl and Sorenson (2009) for Danish entrepreneurs. While rural unemployment in Denmark tends to be slightly higher, the average national unemployment rate in 2004 was as low as 5.8%. As in other Scandinavian countries, low unemployment is combined with a high national GDP per capita, which overall translates into entrepreneurship for opportunity, not necessity (Acs et al., 2004). Regarding industry, it can be seen that a larger share of urban entrepreneurs start-up in service (and manufacturing) while a larger share of rural entrepreneurs start-up in building and construction (and retail). Agriculture is not included in this study.

Table 10 includes an indicator for knowledge, years of further education (i.e. education beyond elementary school), as well as two variables for circumstances prior to potential start-up: personal income and household wealth in 2003. The main independent variables in Table 10 are: entrepreneurial traits score, risk willingness score, number of different groups of individuals with frequent contact, and the number of individuals in the social network. The last variable, only for the entrepreneurs, measures the number of employers/employees in their business. Most of the indicators in Table 10 are natural logarithms.

Table 10 shows that urban populations have significantly higher education even though, both in urban and rural areas, entrepreneurs have slightly more education than non-entrepreneurs. In both urban and rural areas, entrepreneurs are found to have higher incomes than non-entrepreneurs but this is when not controlling for age. The high standard deviations in urban areas compared to rural implies urban inequality, which is quite acknowledged in the literature. Taking into consideration the caveats of overall high standard deviations in wealth, non-entrepreneurs are found to be more wealthy than entrepreneurs (the year before start-up) in both urban and rural areas.

Overall, it seems that the sample is consistent with most of the entrepreneurship literature in the field. Hence, the Danish population of entrepreneurs is in line with research in other countries. However, the aim of this research is to go further than a univariate analysis in order to learn more about the entrepreneurial dynamics in urban and rural areas from a multivariate analysis. The next section will discuss the main results of the research estimating the probability of becoming an entrepreneur and the probability of surviving as an entrepreneur, respectively.

Results

The probit coefficients for the probability of being an entrepreneur can be seen in Table 4. Six different models are specified for the analysis. Apart from the control variables, Model 1 includes a dummy for urban area and all four indicators of individual creativity. Model 2-5 each include one of the four individual creativity indicators with the matching urban area interaction term. Finally, Model 6 includes all individual creativity indicators as well as all interaction terms. Using these independent variables together with firm controls, the six models in Table 5 show the probit coefficients for the probability of surviving as an entrepreneur. Finally, Table 6 and Table 7 mirror the previous two tables

except that the four creativity indicators are replaced with four indicators for the social network.

Individual creativity

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	-0.602**	-0.681**	-0.652**	-0.693**	-0.618**	-0.600**
	(0.077)	(0.074)	(0.075)	(0.075)	(0.076)	(0.077)
31-40 age	0.311**	0.333**	0.305**	0.311**	0.332**	0.292**
	(0.109)	(0.108)	(0.108)	(0.107)	(0.108)	(0.110)
41-50 age	0.120	0.168	0.111	0.124	0.157	0.105
	(0.116)	(0.115)	(0.116)	(0.115)	(0.115)	(0.117)
51+ age	-0.163	-0.173	-0.182	-0.234†	-0.184	-0.194
	(0.136)	(0.134)	(0.134)	(0.134)	(0.133)	(0.137)
Foreign	0.284†	0.222	0.255	0.217	0.207	0.290†
	(0.166)	(0.164)	(0.165)	(0.164)	(0.165)	(0.166)
Married	0.256**	0.249**	0.263**	0.273**	0.265**	0.274**
	(0.082)	(0.081)	(0.081)	(0.081)	(0.080)	(0.082)
Education	0.002	0.024	0.008	0.017	0.019	0.002
	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)
Income - ln	0.037†	0.040*	0.039*	0.036†	0.039*	0.037†
	(0.019)	(0.018)	(0.019)	(0.019)	(0.018)	(0.019)
Wealth - ln	-0.015*	-0.015*	-0.015*	-0.016*	-0.016*	-0.016*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Unemployed	0.645**	0.614**	0.611**	0.599**	0.621**	0.645**
	(0.106)	(0.104)	(0.104)	(0.104)	(0.104)	(0.107)
Moved	0.097	0.133	0.100	0.140	0.131	0.105
	(0.098)	(0.097)	(0.098)	(0.097)	(0.097)	(0.100)
Urban	0.042	0.149	0.097	-0.119	0.113	0.105
	(0.078)	(0.136)	(0.125)	(0.102)	(0.086)	(0.163)
Intrinsic	0.289**	0.435**				0.400**
	(0.083)	(0.116)				(0.120)
Traits	0.144**		0.201**			0.207**
	(0.034)		(0.048)			(0.054)
Creativity	0.062			0.000		-0.265*
	(0.081)			(0.109)		(0.123)
Risk	0.516**				0.712**	0.642*
	(0.165)				(0.266)	(0.281)
U x Intrinsic		-0.095				-0.208
		(0.160)				(0.168)
U x Traits			-0.026			-0.103
			(0.062)			(0.069)
U x Creativity				0.449**		0.585**
				(0.147)		(0.164)
U x Risk					-0.180	-0.177
					(0.329)	(0.343)
Constant	-0.449†	-0.348	-0.266	0.055	-0.131	-0.478†
	(0.243)	(0.245)	(0.242)	(0.236)	(0.234)	(0.255)
Pseudo R^2	0.14	0.12	0.13	0.12	0.12	0.15
Log-likelihood	-770	-789	-782	-790	-792	-763
Observations	1528	1528	1528	1528	1528	1528

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 4: Probit models for becoming an entrepreneur: individual creativity.

Initially, Model 1 of Table 4 shows that living in an urban area does not influence the probability of being an entrepreneur. The coefficients for the creativity indicators in Model 1 reveal that entrepreneurs have a higher probability of being motivated by intrinsic work values, have more of the commonly studied

entrepreneurial traits and are more willing to take calculated risks. However, the direct measure of individual creativity is insignificant. Model 2-6 further reveal that the effects of intrinsic motivation, entrepreneurial traits and risk willingness on the probability of being an entrepreneur are no different in urban and rural areas (indicated by the insignificant interaction terms). However, Model 4 and 6 show that the direct measure of individual creativity significantly increases the probability of being an entrepreneur in urban areas. Meanwhile, creativity has no influence (Model 4) or a significantly negative influence (Model 6) in rural areas. Assessing this interaction effect graphically, Figure 2 and 3 show that the interaction effect is: (1) Significant for all probabilities of being an entrepreneur, (2) Positive for all probabilities of being an entrepreneur, and (3) Ranges from approximately 0.15 (low probabilities) to 0.05 (high probabilities). Overall, these findings show creativity to be a latent capacity for entrepreneurship that is only utilised if the environment is supportive, as is the case in urban areas. Although the four indicators for creativity are found to be important for the probability of being an entrepreneur, none of these indicators are found to be important for the probability of survival in Table 5 when assessing significance from the probit coefficients or the interaction effects graphically. However, Model 1 reveals that living in an urban area has a significant negative influence on the probability of survival, which is assumed to reflect the higher competition in these areas.

Social network

Using the same approach as earlier, Model 1 of Table 6 again confirms that living in an urban area does not influence the probability of being an entrepreneur. Furthermore, Model 1, including all four indicators for social network, shows that start-up encouragement from family and friends have large positive effects on the probability of being an entrepreneur while the size of the social network (number of persons) has a small negative effect. The latter result, however, is not significant when interaction terms are introduced (Model 3 and 6). Finally, frequent contact (approximately every week) to more groups of individuals does not influence the probability of becoming an entrepreneur when all indicators are included in the same model (Model 1 and 6). However, it does have a small positive effect in Model 2; an effect that is no different in urban and rural areas. Hence, these findings support the previous studies on the importance of "moral support" on the decision to become an entrepreneur. This study further shows that the effect of encouragement is strong in both urban and rural areas. Only if a 10% level of significance is accepted, the effect of family encouragement in urban areas is somewhat reduced (a graphical interpretation can be seen in

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	-0.218*	-0.243**	-0.233*	-0.237**	-0.232*	-0.216*
	(0.093)	(0.091)	(0.091)	(0.091)	(0.092)	(0.093)
31-40 age	0.158	0.159	0.146	0.153	0.156	0.156
	(0.115)	(0.115)	(0.115)	(0.115)	(0.115)	(0.115)
41-50 age	0.146	0.145	0.125	0.140	0.140	0.145
	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.128)
51+ age	0.108	0.088	0.085	0.085	0.094	0.105
	(0.157)	(0.157)	(0.157)	(0.157)	(0.157)	(0.158)
Foreign	-0.078	-0.094	-0.089	-0.109	-0.111	-0.068
	(0.159)	(0.159)	(0.159)	(0.159)	(0.159)	(0.160)
Married	0.045	0.041	0.044	0.051	0.041	0.051
	(0.087)	(0.086)	(0.086)	(0.087)	(0.086)	(0.087)
Education	-0.005	-0.003	-0.006	0.001	-0.002	-0.005
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Income - ln	-0.009	-0.010	-0.010	-0.008	-0.009	-0.009
	(0.021)	(0.020)	(0.020)	(0.020)	(0.020)	(0.021)
Wealth - ln	0.019**	0.019**	0.019**	0.018**	0.018**	0.019**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Unemployed	-0.031	-0.036	-0.036	-0.041	-0.033	-0.033
	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)
Moved	-0.164†	-0.154	-0.158	-0.140	-0.153	-0.159
	(0.100)	(0.099)	(0.100)	(0.099)	(0.099)	(0.100)
Urban	-0.204*	-0.201	-0.252†	-0.264*	-0.172†	-0.249
	(0.085)	(0.168)	(0.145)	(0.118)	(0.094)	(0.196)
Intrinsic	0.176†	0.194				0.191
	(0.097)	(0.139)				(0.143)
Traits	0.060†		0.043			0.053
	(0.035)		(0.049)			(0.054)
Creativity	-0.123			-0.131		-0.200
	(0.087)			(0.122)		(0.132)
Risk	0.064				0.182	0.152
	(0.112)				(0.179)	(0.180)
U x Intrinsic		-0.007				-0.027
		(0.189)				(0.194)
U x Traits			0.022			0.012
			(0.063)			(0.069)
U x Creativity				0.135		0.139
				(0.161)		(0.173)
U x Risk					-0.166	-0.154
					(0.228)	(0.231)
Employees - ln	0.126	0.121	0.139	0.142	0.138	0.127
	(0.125)	(0.125)	(0.125)	(0.124)	(0.125)	(0.126)
Ownership personal	-0.182†	-0.195†	-0.181†	-0.203†	-0.200†	-0.183†
	(0.108)	(0.107)	(0.107)	(0.107)	(0.107)	(0.108)
Industry control	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.282	0.361	0.433	0.539†	0.471	0.302
	(0.319)	(0.323)	(0.318)	(0.312)	(0.310)	(0.331)
Pseudo R^2	0.06	0.06	0.06	0.06	0.06	0.06
Log-likelihood	-698	-700	-701	-702	-702	-697
Observations	1108	1108	1108	1108	1108	1108

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 5: Probit models for new firm survival: individual creativity.

Figure 4 and 5).

Turning to the probability of entrepreneurial survival in Tabel 7, Model 1 confirms that living in an urban area decreases the probability of survival. However, encouragement is not only important for the start-up decision. All models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	-0.564**	-0.670**	-0.673**	-0.665**	-0.548**	-0.554**
	(0.081)	(0.075)	(0.074)	(0.078)	(0.078)	(0.081)
31-40 age	0.318**	0.361**	0.306**	0.349**	0.358**	0.322**
	(0.115)	(0.108)	(0.108)	(0.112)	(0.111)	(0.116)
41-50 age	0.254*	0.200†	0.135	0.274*	0.231†	0.259*
	(0.124)	(0.116)	(0.115)	(0.121)	(0.119)	(0.125)
51+ age	-0.082	-0.143	-0.225†	-0.043	-0.108	-0.077
	(0.144)	(0.134)	(0.134)	(0.140)	(0.138)	(0.145)
Foreign	0.244	0.220	0.182	0.188	0.264	0.240
	(0.173)	(0.165)	(0.164)	(0.170)	(0.170)	(0.173)
Married	0.228**	0.263**	0.260**	0.192*	0.284**	0.225**
	(0.086)	(0.080)	(0.080)	(0.084)	(0.083)	(0.086)
Education	0.031†	0.024	0.028†	0.037*	0.015	0.030†
	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)
Income - ln	0.022	0.040*	0.040*	0.029	0.029	0.022
	(0.020)	(0.018)	(0.018)	(0.020)	(0.019)	(0.020)
Wealth - ln	-0.015*	-0.015*	-0.016*	-0.014*	-0.015*	-0.015*
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
Unemployed	0.506**	0.609**	0.594**	0.535**	0.539**	0.507**
	(0.109)	(0.104)	(0.103)	(0.107)	(0.107)	(0.109)
Moved	0.146	0.146	0.143	0.129	0.155	0.148
	(0.103)	(0.097)	(0.096)	(0.101)	(0.101)	(0.103)
Urban	0.052	0.205†	0.250	0.187†	0.115	0.407*
	(0.081)	(0.121)	(0.155)	(0.101)	(0.105)	(0.193)
Network frequency	0.009	0.134*				0.024
	(0.041)	(0.056)				(0.061)
Network size	-0.150*		-0.024			-0.073
	(0.060)		(0.080)			(0.088)
Family inspiration	0.677**			1.078**		0.828**
	(0.087)			(0.117)		(0.129)
Friends inspiration	0.595**				0.965**	0.645**
	(0.087)				(0.116)	(0.129)
U x Network frequency		-0.085				-0.035
		(0.075)				(0.082)
U x Network size			-0.117			-0.140
			(0.109)			(0.119)
U x Family inspiration				-0.272†		-0.271
				(0.156)		(0.173)
U x Friends inspiration					-0.187	-0.072
					(0.153)	(0.173)
Constant	-0.317	-0.243	-0.006	-0.448†	-0.411†	-0.504†
	(0.266)	(0.243)	(0.253)	(0.250)	(0.243)	(0.280)
Pseudo R^2	0.22	0.11	0.11	0.19	0.18	0.22
Log-likelihood	-700	-797	-799	-724	-735	-697
Observations	1528	1528	1528	1528	1528	1528

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 6: Probit models for becoming an entrepreneur: social network.

including encouragement reveal that encouragement from family increases the probability of survival while encouragement from friends is found to be insignificant. However, when including interaction terms (Model 4 and 6), it becomes evident that the large positive effect of family encouragement is only present in rural areas. Moreover, frequent contact to more groups of individuals has a positive influence on the probability of survival but only in rural areas (Model 2 and 6). Assessing the two interaction effects graphically, Figure 8 and 9 show that the interaction effect of family encouragement is: (1) Significant for entrepreneurs with a probability of survival less than 80%, (2) Negative for all

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	-0.216*	-0.234*	-0.227*	-0.252**	-0.224*	-0.213*
	(0.094)	(0.092)	(0.091)	(0.092)	(0.092)	(0.095)
31-40 age	0.141	0.179	0.125	0.154	0.155	0.141
	(0.116)	(0.115)	(0.116)	(0.115)	(0.115)	(0.117)
41-50 age	0.153	0.180	0.102	0.153	0.143	0.147
	(0.129)	(0.127)	(0.128)	(0.127)	(0.127)	(0.129)
51+ age	0.123	0.132	0.038	0.117	0.098	0.102
	(0.161)	(0.159)	(0.158)	(0.158)	(0.157)	(0.162)
Foreign	-0.077	-0.078	-0.110	-0.089	-0.102	-0.051
	(0.160)	(0.159)	(0.159)	(0.160)	(0.159)	(0.161)
Married	0.015	0.047	0.033	0.016	0.048	0.020
	(0.088)	(0.087)	(0.087)	(0.087)	(0.086)	(0.088)
Education	0.002	-0.002	0.002	0.001	-0.003	0.005
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Income - ln	-0.012	-0.011	-0.010	-0.010	-0.011	-0.013
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.021)
Wealth - ln	0.018**	0.018**	0.018**	0.019**	0.018**	0.018**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Unemployed	-0.030	-0.018	-0.043	-0.035	-0.045	-0.025
	(0.098)	(0.097)	(0.097)	(0.097)	(0.097)	(0.098)
Moved	-0.152	-0.152	-0.150	-0.158	-0.149	-0.160
	(0.100)	(0.100)	(0.099)	(0.100)	(0.099)	(0.100)
Urban	-0.196*	0.090	-0.088	0.035	-0.202	0.231
	(0.086)	(0.137)	(0.166)	(0.130)	(0.139)	(0.215)
Network frequency	0.094*	0.229**				0.196**
	(0.042)	(0.063)				(0.065)
Network size	-0.158*		-0.079			-0.120
	(0.063)		(0.089)			(0.091)
Family inspiration	0.259**			0.521**		0.475**
	(0.089)			(0.125)		(0.136)
Friends inspiration	0.065				0.162	-0.049
	(0.092)				(0.124)	(0.137)
U x Network frequency		-0.223**				-0.186*
		(0.083)				(0.085)
U x Network size			-0.090			-0.072
			(0.120)			(0.124)
U x Family inspiration				-0.392*		-0.393*
				(0.164)		(0.177)
U x Friends inspiration					-0.011	0.211
					(0.167)	(0.183)
Employees - ln	0.138	0.148	0.143	0.123	0.144	0.134
	(0.125)	(0.126)	(0.125)	(0.125)	(0.125)	(0.127)
Ownership personal	-0.194†	-0.193†	-0.189†	-0.216*	-0.201†	-0.197†
	(0.108)	(0.107)	(0.107)	(0.107)	(0.107)	(0.108)
Industry control	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.394	0.185	0.620†	0.220	0.417	0.163
	(0.329)	(0.322)	(0.329)	(0.318)	(0.314)	(0.344)
Pseudo R^2	0.07	0.06	0.06	0.07	0.06	0.08
Log-likelihood	-690	-696	-700	-693	-701	-685
Observations	1108	1108	1108	1108	1108	1108

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 7: Probit models for new firm survival: social network.

probabilities of survival less than 80%, and (3) Ranges from approximately -0.15 (mid probabilities) to -0.10 (high probabilities). In the same way, Figure 6 and 7 show that the interaction effect of frequent contact is: (1) Significant for entrepreneurs with a probability of survival less than 80%, (2) Negative for all probabilities of survival less than 80%, and (3) Ranges from approximately -0.09 (mid probabilities) to -0.06 (high and low probabilities). Finally, social network

size is found to have a negative effect on the probability of survival in Model 1, but, as before, the effect becomes insignificant when interaction effects (Model 3 and 6) are introduced. Overall, these findings support the literature on the positive role of a social network for successful entrepreneurship but mostly in rural areas.

Robustness check

Robustness analysis of the above results is conducted using the following three steps. All tables are reproduced, but instead of excluding the semi-urban respondents, they are first included in the group of urban individuals and second in the group of rural individuals. This results in only a few significant differences in the main findings. When the semi-urban respondents are included in the group of urban individuals, living in an urban area is found to have an insignificant effect on the probability of survival. Furthermore, the positive effect of family encouragement on start-up is found to be significantly lower in urban areas. On the contrary, when semi-urban respondents are included in the group of rural individuals, living in an urban area is still found to reduce the probability of survival, and the positive effect of family encouragement is still present in both urban and rural areas. However, the positive effect on survival of frequent contact to more groups is not found to be reduced in urban areas as before.

Third, the dichotomy between urban and rural areas is dropped for a continuous variable: the number of individuals living in the respondent's municipality (see Figure 1 for the 271 municipalities of Denmark in 2004). In order to get a meaningful interpretation of the results, the variable is normalised by subtracting the 25% percentile (=6,538 inhabitants) and dividing by the standard deviation (=122,152 inhabitants). Again, this results in only a few differences in the main results. First, the negative effect on survival of living in a more populated municipality disappears. Second, the direct measure of creativity is found to be unimportant for start-up, regardless of municipality population size.

Summing up, the results seem to be robust with the following notes. The result regarding individual creativity is dependent on an urban-rural dichotomy. Furthermore, the semi-urban areas are more similar to the urban areas when it comes to survival chances but more like rural areas when it comes to the dependence on family encouragement.

Discussion

To put this study into context, it must be noted that in the first stages of research, a much larger number of entrepreneurship indicators were analysed: 14 for identity, 12 for start-up motivation, 19 for social network characteristics, and 18 for social network utilisation during start-up. Out of these 63 indicators, only a few showed significant differences between the entrepreneurs in urban and rural settings. The main distinctions found were between entrepreneurs and non-entrepreneurs and not between urban and rural populations. This is in line with the findings in Babb and Babb (1992) but goes against much of the literature claiming significant differences between urban and rural inhabitants, particularly between entrepreneurs. The present paper has focused on only a few theoretical important variables related to individual creativity and social networks, exploring the need for combing the person with the environment in the study design.

Creative individuals do not have a higher probability of becoming an entrepreneur in rural areas but they do in urban areas. This supports the view of individual creativity being only a latent capacity for entrepreneurship, which is fostered by the supportive environment in urban areas but not in rural areas. Therefore, the results may support the literature that points out the relationship between creativity and larger cities. Taking the view that creativity can be learned, this finding is of special interest for entrepreneurship education. However, turning to the indirect indicators of individual creativity – intrinsic and extrinsic work values, entrepreneurial traits, and risk willingness – all indicators are positively related to being an entrepreneur, regardless of geographical setting. Interestingly, the direct and indirect measures of individual creativity do not seem to have a significant influence on the probability of survival. In other words, individual creativity is not the ingredient for making entrepreneurship to last. Instead, business characteristics such as financial resources, ownership type, and industry are more important for survival. However, starting a business in an urban area reduces the probability of survival which should be taken into account when choosing a start-up location.

Starting with the two size measures of the social network, none of the following indicators have been shown to have an effect on start-up: the number of different groups the respondent talks to every or almost every week and the number of individuals the respondent would talk to about significant considerations of a career change. However, the former indicator increases the probability of survival, but only in rural areas. The same conclusion can be made when

it comes to having a moral support network indicated by encouragement for start-up by family and friends. Both indicators have a significant and positive effect (of almost equal size) on start-up, independent of geographical setting. However, when turning to chances of survival, only family encouragement is significant and positive, but the effect is close to non-existing in urban areas. Overall, these findings support the view of the social network as being important for start-up, but when it comes to survival, urban entrepreneurs do not seem to have much to gain. This calls into question how network building initiatives for entrepreneurs should be promoted in different areas.

Below, the limitations and possibilities for future research are briefly discussed. Even though the above findings seem to be robust regarding changes in the definition of urban and rural areas, further experiments could be conducted, i.e. do the findings change significantly if the 20 kilometre limit (commuting distance limit) is changed to 10 or 30? Furthermore, it should be noted that the municipality of the respondent's home was the basis for grouping urban and rural inhabitant instead of the municipality of the business. This was necessary in order to categorise the non-entrepreneurs. However, it is safe to assume that the entrepreneurs in most cases live close to the business that they started and are actively involved in. Finally, and perhaps most importantly, control variables for start-up industry was included in the survival analysis but only on an aggregate level; i.e. seven industry categories. It might be that the findings in this study are mainly a result of differences in industry structure instead of different dynamics in urban and rural areas. More disaggregated industry controls could easily be added based on IDA information but given the limited number of respondents, this is not done in this study.

The results in this paper are based on quantitative analysis of survey data. Using post-start-up survey data could be problematic if creativity and network behaviours have changed after start-up. In other words, the causality could be the opposite of the assumed. Hence, only after new venture founding, or survival, does the entrepreneur see herself as more creative and/or more open to the social network. However, the time-lag between the start-up and survey response is limited to four years which is likely to reduce the problem. The findings of this quantitative study could be supplemented with more in-depth qualitative research or longitudinal survey data.

Conclusion

This study explores two facets that many consider to be crucial for entrepreneurship in general, namely individual creativity and social network. The former is important given the need to be flexible and adaptable under uncertainty while the latter is important given the constant pursued of resources. Nevertheless, the role of these could be very different in ruban and rural settings. An important finding is that creative individuals have a higher probability of establishing a business if they are located in urban areas, but creativity does not influence the chances of survival which is dependent on other factors. Furthermore, the social network is important for start-up in both urban and rural areas, but when it comes to survival, it seems only rural area entrepreneurs are benefitted. Hence, leaving out the environment could lead to insignificant or misleading results, impacting entrepreneurship initiatives. More research bringing together personal and geographical factors in the research design is encouraged.

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Indicator	Description	Imputations
Intrinsic motivation	Dummy: The value 1 if the respondent finds more intrinsic values "very important" compared to extrinsic values if the respondent were to say yes to a new job. 8 intrinsic values (e.g. "the work entails responsibility", "the work tasks are varying", "you can work independently", and "you can strengthen skills and abilities") and 8 extrinsic values (e.g. "the work provides a high income", "the work is a good stepping stone for my further career", "the work tasks are tailored to the working hours", and "the colleagues show a personal interest in me" are included. The extrinsic values covers the financial, career, convenience, and co-worker dimension with two values for each.	107 - 7%
Entrepreneurial traits	Discrete: The number of entrepreneurial traits that the respondent posses derived from 10 mixed and reversed statements related to the five traits: Tolerance of ambiguity (e.g. "I often pursue the attractive but uncertain opportunities"), need for achievement (e.g. "I prefer result-oriented and innovatory tasks"), locus of control "I think that success is the result of hard work", optimism (e.g. "I always expect the best outcome of a situation", and desire for autonomy ("I like to determine myself how tasks are completed"). The value 1 is given for each trait if there is agreement and disagreement with the two reversed statements. Two additional statements covering creativity was removed to create a separate indicator.	67 - 4%
Creativity	Dummy: The value 1 if there is agreement and disagreement with the two reversed items covering this entrepreneurial trait ("I often think of new ideas and ways to solve tasks" and "I prefer to accomplish tasks the way I have always done"). The statements are mixed with 10 statements covering other traits (see previous indicator).	40 - 3%
Risk willingness	Continuous: The respondents reservation price for one out of ten lottery tickets divided by the fair price of this ticket given the one prize (of 100,000 DKK) in the lottery. The respondent is risk averse for values between 0 and 1, risk neutral for the value 1, and risk loving for values above 1.	126 - 8%
Contact frequency	Discrete: The number of different groups that the respondent talks to every or almost every week (including over telephone, mail, social network software, etc.). The four different groups included are: "Present colleagues or business relations outside of the work place", "Persons mainly known as former colleagues or business relations", "Persons mainly known as former schoolmates or fellow students", and "Persons mainly known from associations (e.g. sport and leisure).	53 - 3%
Size of network	Continuous: The natural logarithm to the number of individuals that the respondent would talk to about considerations over a longer period of time regarding a career change. Included are the following individuals: "Close family (i.e. spouse/partner, parents, siblings, and children)", "Other family", "Present colleagues", "Former colleagues", "Other friends and acquaintances", and "Professionals" (e.g. coach).	201 - 13%
Family encouragement	Dummy: The value 1 if the respondent has been inspired or encouraged by close family (i.e. spouse/partner, parents, siblings, and children) or other family to start a business.	59 - 4%
Friends encouragement	Dummy: The value 1 if the respondent has been inspired or encouraged by present colleagues, former colleagues, or other friends/acquaintances to start a business.	71 - 5%

Table 8: Indicators for identity and network from the survey.

	Entrepreneur				Non-Entrepreneur			
	Urban		Rural		Urban		Rural	
	frq.	pct.	frq.	pct.	frq.	pct.	frq.	pct.
Gender								
Male	423	69%	349	71%	100	45%	82	41%
Female	192	31%	144	29%	120	55%	118	59%
Age								
-30 years	120	20%	99	20%	65	30%	47	24%
31-40 years	232	38%	193	39%	60	27%	43	22%
41-50 years	180	29%	144	29%	55	25%	69	35%
51+ years	83	13%	57	12%	40	18%	41	21%
Foreign origin								
Danish	561	91%	470	95%	206	94%	198	99%
Other	54	9%	23	5%	14	6%	2	1%
Married								
No	279	45%	177	36%	114	52%	101	51%
Yes	336	55%	316	64%	106	48%	99	50%
Move to area								
No move	501	81%	357	72%	186	85%	163	82%
Move	114	19%	136	28%	34	15%	37	19%
Unemployed								
No	486	79%	364	74%	200	91%	178	89%
Yes	129	21%	129	26%	20	9%	22	11%
Intrinsic								
No	128	21%	118	24%	71	32%	78	39%
Yes	487	79%	375	76%	149	68%	122	61%
Creativity								
No	252	41%	274	56%	131	60%	115	57%
Yes	363	59%	219	44%	89	40%	85	43%
Family encouragement								
No	252	41%	172	35%	161	73%	162	81%
Yes	363	59%	321	65%	59	27%	38	19%
Friends encouragement								
No	192	31%	178	36%	148	67%	155	78%
Yes	423	69%	315	64%	72	33%	45	23%
Industry								
Service	300	49%	169	34%	-	-	-	-
Hotel/Restaurant	48	8%	48	8%	-	-	-	-
Wholesale	29	5%	17	5%	-	-	-	-
Retail	84	14%	89	18%	-	-	-	-
Building/Construction	71	12%	123	25%	-	-	-	-
Manufacturing	83	13%	45	9%	-	-	-	-
Ownership type								
Personal	465	76%	400	81%	-	-	-	-
Other	150	24%	93	19%	-	-	-	-

Table 9: Descriptive statistics of categorical variables.

		N	mean	std. dev.	min	max
Education - Years further						
Entrepreneur	Urban	615	4.987	2.402	-2	11
	Rural	493	3.872	2.286	-3	11
Non-Entrepreneur	Urban	220	4.488	2.630	-2	11
	Rural	200	3.433	2.262	-2	8
Income - ln						
Entrepreneur	Urban	615	12.093	2.095	0	14.769
	Rural	493	11.940	1.823	0	14.251
Non-Entrepreneur	Urban	220	11.660	2.438	0	14.118
	Rural	200	11.684	1.689	0	14.033
Wealth - ln						
Entrepreneur	Urban	615	7.623	6.373	0	15.510
	Rural	493	6.194	6.269	0	15.769
Non-Entrepreneur	Urban	220	8.371	6.031	0	15.805
	Rural	200	7.458	6.030	0	14.897
Traits score						
Entrepreneur	Urban	615	2.085	1.316	0	5
	Rural	493	1.777	1.238	0	5
Non-Entrepreneur	Urban	220	1.550	1.179	0	5
	Rural	200	1.240	1.014	0	4
Risk score						
Entrepreneur	Urban	615	0.204	0.362	0	4
	Rural	493	0.181	0.418	0	5
Non-Entrepreneur	Urban	220	0.101	0.209	0	1
	Rural	200	0.083	0.163	0	1
Contact score						
Entrepreneur	Urban	615	1.354	0.969	0	4
	Rural	493	1.343	0.995	0	4
Non-Entrepreneur	Urban	220	1.214	0.963	0	4
	Rural	200	1.145	0.964	0	4
Size - ln						
Entrepreneur	Urban	615	1.222	0.643	0	3.401
	Rural	493	1.141	0.673	0	3.912
Non-Entrepreneur	Urban	220	1.361	0.668	0	3.401
	Rural	200	1.212	0.682	0	3.219
Employees (fte) - ln						
Entrepreneur	Urban	615	0.069	0.292	0	2.708
	Rural	493	0.104	0.398	0	2.833

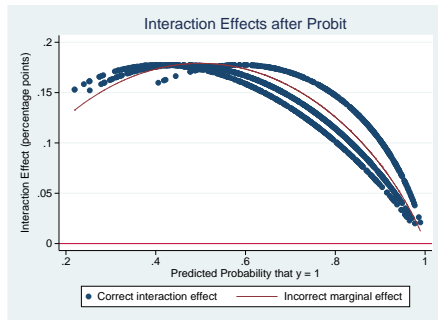**Table 10:** Descriptive statistics of continuous variables.

Figure 2: Interaction effect (Urban x Creativity) as a function of predicted probability of being an entrepreneur.
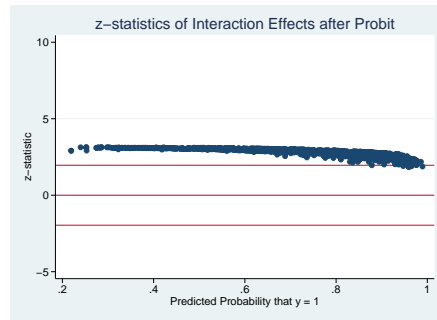

Figure 3: Significance of interaction effect (Urban x Creativity) as a function of predicted probability of being an entrepreneur.
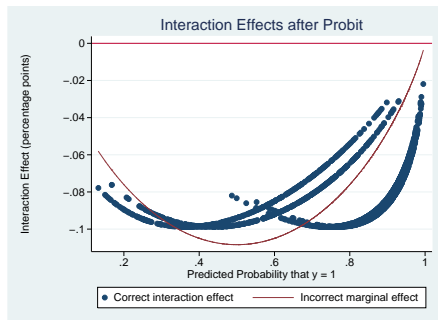

Figure 4: Interaction effect (Urban x Family E) as a function of predicted probability of being an entrepreneur.
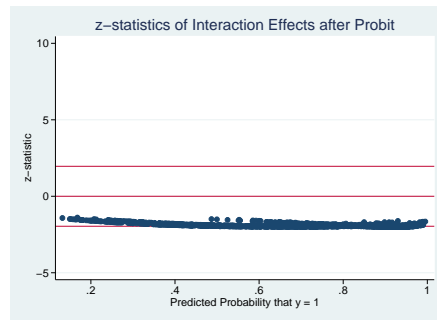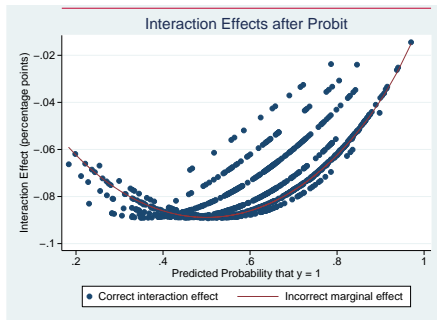

Figure 5: Significance of interaction effect (Urban x Family) as a function of predicted probability of being an entrepreneur.

Figure 6: Interaction effect (Urban x Contact) as a function of predicted probability of having survived as an entrepreneur.
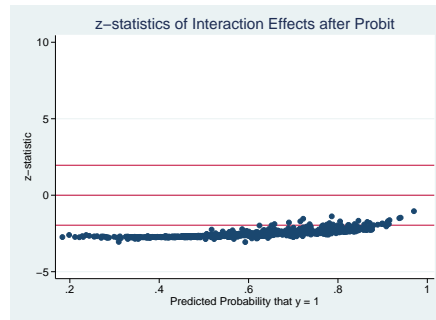

Figure 7: Significance of interaction effect (Urban x Contact) as a function of predicted probability of having survived as an entrepreneur.
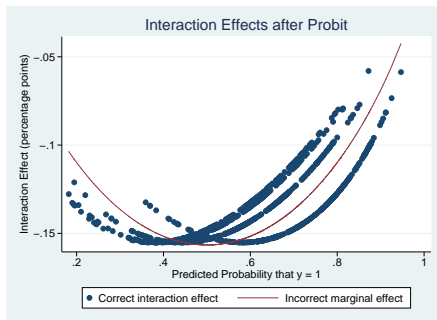

Figure 8: Interaction effect (Urban x Family E) as a function of predicted probability of having survived as an entrepreneur.
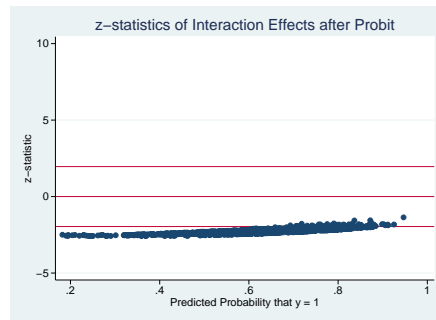

Figure 9: Significance of interaction effect (Urban x Family) as a function of predicted probability of having survived as an entrepreneur.