

Entrepreneurship in the Region: Breeding Ground for Nascent Entrepreneurs?

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ABSTRACT. This paper employs data from the German Socioeconomic Panel (SOEP) and data from the German Social Insurance Statistics to study nascent entrepreneurship. In particular, micro data from the SOEP characterizing employees and nascent entrepreneurs is combined with data characterizing the entrepreneurial environment. The principal findings suggest that individuals are embedded in their local entrepreneurial environment which influences an individual especially at the beginning of the decision process about whether to become self-employed. Work and previous self-employment experience is more important than formal education for the likelihood of being a nascent entrepreneur. Furthermore, social capital is an important stimulus for nascent entrepreneurs. Finally, the results indicate that financial assets are less important for nascent entrepreneurs.

KEY WORDS: entrepreneurship, SOEP, self-employment, young and small firms.

JEL CLASSIFICATION: J23, M13, R12

1. Introduction: The entrepreneurial decision and the social environment

New business formation is recognized to have an important stimulating effect on economic development (Audretsch and Keilbach, 2004; Audretsch et al., 2006; Fritsch and Mueller, 2004; Reynolds et al., 2004a; van Stel and Storey, 2004). Nevertheless, it is rather unclear why entrepreneurship does not flourish evenly across regions and is greatly path-dependent. Because nascent entrepreneurs are the potential founders of new ventures, it is crucial to understand why some individuals attempt to take the opportunity to become an entrepreneur while others

neglect this opportunity and to what extent the social environment and embeddedness influences individual's decision to become an entrepreneur. The decision to start a new venture may be influenced by experience and prior knowledge (Shane, 2000; Shepherd and DeTienne, 2005; Wagner, 2004); social networks and contact to other entrepreneurs (Davidsson and Honig, 2003; Minniti, 2004, 2005; Singh et al., 1999); availability of financial capital or individual wealth (Dunn and Hotz-Eakin, 2000; Evans and Jovanovich, 1989; Kim et al., 2007); as well as expected profit and success.

A great number of empirical studies focus on the characteristics of nascent entrepreneurs analyzing why some individuals plan to become entrepreneurs and others do not. From an economic perspective, an individual will only choose to become self-employed if the expected life-time utility from self-employment is greater than the life-time utility from dependent employment. Certainly, the expected life-time utility is based upon monetary and non-monetary returns whereas the non-monetary aspect is found to be rather important (Hamilton, 2000; Moskowitz and Vissing-Jørgensen, 2002; Parker, 2004). Two recent studies by Wagner (2004, 2005) clearly indicate that role models are a crucial determinant for nascent entrepreneurs. Role models may be found in the family or in the work place: the existence of self-employed family members and work experience in young and small firms increases one's propensity to start a business (Davidsson and Honig, 2003; Dunn and Holtz-Eakin, 2000).

Parker (2004, p. 100) suggests that regions with strong entrepreneurial traditions have an advantage, if they are able to perpetuate it over time and across generations. Minniti (2005) concludes that entrepreneurship is self-reinforcing in nature. According to Fritsch and Mueller

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(2005) the distinct regional differences in new business formation rates can be principally explained by previous entrepreneurial activity (cf. Mueller et al., 2007). While the role of small and young firms as fertile ground for new businesses has been analyzed in several studies on the regional level (e.g. Audretsch and Fritsch, 1994; Beesley and Hamilton, 1984; Fritsch and Mueller, 2005; Gerlach and Wagner, 1994), the question whether a high population of young and small firms, assumed as entrepreneurial firms, in a region influences the individual propensity to transit to self-employment is unexplored.

In this paper I study possible factors influencing the decision to become a nascent entrepreneur. This paper complements recent work by combining regional and individual characteristics and analyzes if individuals follow social cues and are influenced by what others have chosen. In particular, I empirically test the proposition that the presence of entrepreneurs in the social environment influences the decision to enter self-employment. The remainder of the paper is structured as follows. Section 2 reviews the literature and develops hypotheses regarding the influence of the social environment on the individual decision on entrepreneurship. In Section 3, previous research on human, social, and financial capital as a determinant of nascent entrepreneurship is reviewed and hypotheses are generated. Section 4 describes the data samples and provides descriptive statistics. Empirical results are presented and discussed in Section 5, while Section 6 provides conclusions.

2. The local entrepreneurial environment and nascent entrepreneurship

Entrepreneurial activity not only tends to cluster geographically, it is also characterized by persistent regional differences over time. Silicon Valley, Boston's Route 128, or the Washington D.C. region in the U.S., Stuttgart or Munich in Germany, and Bangalore in India are some of the well-known innovative industrial and entrepreneurial clusters. Generally, lower transaction costs due to the economics of scale and scope as well as the availability of qualified labor and proximity to customers, suppliers and competi-

tors are identified as possible causes of spatial concentration and the evolution of a cluster (Feldman, 2001; Fujita et al., 1999; Fujita and Thisse, 2002; Rocha and Sternberg, 2005; see also Minniti, 2005). Fritsch and Mueller (2005) found strong evidence for regional persistency in entrepreneurial activity in West Germany, namely more than 70% of the variance in entrepreneurial activity across regions is accounted for by entrepreneurial activity in the preceding year(s) (for similar results in British regions see Mueller et al., 2005). Therefore, the local social environment, particularly, the entrepreneurial environment must be taken into consideration in order to analyze and understand entrepreneurial decisions (Aldrich and Fiol, 1994; Dubini, 1989; Granovetter, 1985; Minniti, 2004, 2005; Shaper, 1984).

As Minniti (2005) argues, entrepreneurship is self-reinforcing by creating its own culture thereby encouraging individuals to engage in business formation. She develops a model of entrepreneurial dynamics analyzing the impact and importance of economic and social variables on entrepreneurial decisions. During the decision whether to become an entrepreneur the individual faces uncertainty and ambiguity. Uncertainty means that the potential entrepreneur may be uncertain about survival chances and has to deal with the possibility of failure. According to Minniti (2005) ambiguity means that information about the characteristics, needs, rewards, and problems of entrepreneurship are ambiguous, hence the individual is constrained to make decisions. Because individual decisions are most likely affected by social cues in ambiguous environments, individuals may be encouraged in exploiting an entrepreneurial opportunity the higher the presence of other entrepreneurs is (Aldrich, 2003; Minniti, 2005). The larger the number of entrepreneurs, the easier it is to observe and meet them, thus gathering information about necessary input factors, financial resources, potential suppliers and customers, as well as obtaining information about problems associated with the start-up process. Legitimacy may be another factor influencing whether and individual attempts to start a business or not. As soon as entrepreneurship is widely accepted,

running a business is seen as a valuable source of reward and entrepreneurs as well as the self-employed, are perceived as role models thereby encouraging an entrepreneurial decision and sustaining an entrepreneurial culture (see also Aldrich and Fiol, 1994 for legitimacy in the context of an industry creation; Saxenian, 1998, p. 37). Owners of new, or young and small, firms even more than just the self-employed may act as role models and stimuli because these firms are still evolving. I expect that individuals follow social cues and are influenced by other entrepreneurs when facing the decision whether to start a firm or not. Accordingly, I hypothesize that a greater presence of new or young and small firms encourages the individual's attempt to start a business.

3. Human, social and financial capital and nascent entrepreneurship

3.1. Human capital and nascent entrepreneurship

Individuals with more experience and education are assumed to have a greater likelihood to enter self-employment. It is generally agreed that not only are they better informed about profitable opportunities, are more likely to possess the necessary skills, and they typically have the financial resources required for starting a business (Davidsson and Honig, 2003; Kim et al., 2007; Wagner, 2004). Nevertheless, the relationship between education and the probability to step into self-employment is ambiguous, it has been found to be positive, negative, as well as insignificant (for an overview, see Parker, 2004, p. 73). One reason for this ambiguity might be that formal qualifications are not necessarily required for entrepreneurship (Casson, 2003, p. 208; Parker, 2004, p. 73). While a post-secondary education may be fundamental for some knowledge or technology intensive industries e.g. biotechnology, it could be less relevant for starting a business in the trades, e.g. plumbing or carpentry. Kim et al. (2007) emphasize that although knowledge and skills gained in formal education are not necessarily relevant for starting a business it may be a proxy for the social background, ambition and endurance. The years of education seem to be a

reasonable indicator for the acquired skills because it does not only account for a college education but also for vocational training and apprenticeships, which are common in Germany. Accordingly, I expect the years of education to be positively correlated with the likelihood of being a nascent entrepreneur.

Work experience complements skills and knowledge acquired through education and enables employees to gain experience in fields necessary for running their own business. Employees with a managerial position are more likely to gain experience in establishing networks, hiring employees, and interacting with suppliers and customers. These skills may be particularly valuable in the gestation phase of a new business (Bates, 1995; Gimeno et al., 1997; Robinson and Sexton, 1994). While Kim et al. (2007) found that employees with managerial experience are more inclined to start a business, Davidsson and Honig (2003) could not confirm this. Managerial experience may be an especially worthwhile facet of human capital fostering routines that enable individuals to cope with challenges and problems and to recognize opportunities. Therefore, individuals with managerial experience are expected to have greater likelihoods of being a nascent entrepreneur than people without such experience.

Additionally, work experience gained in young and small firms enables employees to learn first hand information about the start-up process, possible constraints as well as the problems and solutions during the start-up process by being in direct contact with the owner (Boden, 1996; Wagner, 2004). The owners of these young firms act as entrepreneurial role models, and, therefore, may enhance the probability of an employee to transition from wage-and-salary to self-employment. Wagner (2004) concluded that employees who work in young and small firms are more likely to become nascent entrepreneurs, he calls these firms hothouses for nascent entrepreneurship. Furthermore, employees in small firms have little opportunities for promotions once they are in a managerial position, therefore, maximizing their expected life-time utility will most likely involve a job change or starting their own venture. Accordingly, I expect a positively correlated relationship

between work experience in small firms and nascent entrepreneurship and hypothesize that especially the combination of both managerial work experience and work experience in small firms increases the propensity of an individual to become a nascent entrepreneur.

Individuals who were self-employed in the past are most likely to be predestined for another start-up activity. They have already gained experience and knowledge valuable for starting another venture. By analyzing differences between novice, portfolio, and serial founders, Westhead and Wright (1998) found that serial entrepreneurs were significantly more likely than novice founders to state that developing an idea for a product was a reason leading to start-up activity. Other reasons leading to start a business mainly were that they wanted to achieve something and to get recognition for it as well as that founding a firm made sense at that time in their life (see also Westhead et al., 2005). Certainly prior self-employment experience might not only be encouraging but also discouraging to start another business later in time. On the one hand individuals with entrepreneurial experience recognize possible mistakes and problems during the start-up phase; on the other hand they may be put off by negative experiences and causes of closure or failure (Westhead et al., 2005). Nevertheless, I presume that potential serial founders are well connected to other entrepreneurs and are more alert to existing and arising opportunities. Thus, I expect previous entrepreneurial experience to be positively associated with the likelihood of being a nascent entrepreneur.

3.2. *Social capital and nascent entrepreneurship*

It is generally acknowledged that social capital facilitates nascent entrepreneurship. Social capital helps individuals attempting to start a business obtain valuable resources needed in the gestation stage. Consistent with Davidsson and Honig (2003), social capital is understood as a concept of social exchange and social network in this paper. Family members, friends and colleagues provide both social networks as well as actual and potential resources. A number of studies investigated and confirmed the phe-

nomenon that children of self-employed parents have a greater propensity to become entrepreneurs. Explanations for this intergenerational correlation might be that parents can offer informal introduction to business methods, transfer valuable work experience, and provide access to capital and equipment, business networks, consultancy and reputation (Aldrich et al., 1998; Blanchflower and Oswald, 1998; Dunn and Holtz-Eakin, 2000; Parker, 2004, p. 85). Additionally, growing up in a self-employed family may lead to a pro-business attitude, desire for independence, autonomy and wealth creation, and reduce the age at which they enter self-employment (e.g. Dunn and Holtz-Eakin, 2000; Parker, 2004, p. 85). Analyzing data from the National Longitudinal Survey, Dunn and Holtz-Eakin (2000) found 30% of sons of self-employed fathers and 20% of sons of self-employed mothers experiencing some self-employment compared to 12% of sons without either parent self-employed. Lentz and Laband (1990) found that about every second self-employed had self-employed parents using a sample of self-employed proprietors from the National Federation of Independent Business in the U.S. According to Dunn and Holtz-Eakin (2000) the strongest effect of parents on the transition to self-employment for sons does not run via financial channels but rather through the self-employment experience and business success of parents. Surprisingly, Kim et al. (2007) did not find a significant positive impact of a parent as an entrepreneur on the likelihood of being a nascent entrepreneur. They offered different explanations for the missing evidence. First, information about the success of the parental business was missing. Second, parents were able to convince their children to abstain from the difficulties of starting and operating a business; or third, the relationship was limited to the stage of running a business and not planning a business. On the contrary, Davidsson and Honig (2003) found that having parents in business significantly increased the prospects of being a nascent entrepreneur (see also Aldrich et al., 1998; Davidsson, 2006; Matthews and Moser, 1995; Renzulli et al., 2000). I hypothesize that children of self-employed parents are more likely than others to be a nascent entrepreneur.

A spouse, partner, or close friend who is self-employed provides valuable social capital to nascent entrepreneurs as well. Employees attempting to start a business can benefit from their knowledge, entrepreneurial experience, and business networks which may result in easier access to capital and equipment. Furthermore, if they are satisfied with being self-employed they may encourage others to start their own business. Capital market constraints represent a barrier in financing the attempt to start a business; they may be eased by the personal wealth or financial resources of a household member being self-employed. According to Davidsson and Honig (2003), individuals were twice as likely to be nascent entrepreneurs if they had close friends or neighbors in business. The impact may be even higher if the spouse or partner is self-employed. Wagner (2005) and Wagner and Sternberg (2004) present similar results with individuals who have personal contact to an entrepreneur in the family being more likely to be actively trying to start a business. Therefore, individuals living together with a self-employed spouse or partner are expected to have higher likelihoods of being a nascent entrepreneur than people without this kind of social capital.

3.3. *Financial capital and nascent entrepreneurship*

It is often argued that entrepreneurs face capital market constraints when trying to acquire financial resources necessary during the start-up process. A recent study by Levenson and Willard (2000) found that banks do not particularly ration credit to new enterprises; only 2% of entrepreneurs failed to obtain finance from banks. Their result supports an earlier study by Berger and Udell (1992), they assessed that US commercial loans are not rationed. Therefore, credit rationing exclusively may not impede entry into self-employment but banks or lenders could provide less financial support the entrepreneur had requested. Parker and van Praag (2006) conclude from a study of Dutch start-up entrepreneurs that about 20% of them obtained less financial capital than requested.

Personal wealth may facilitate the transition to entrepreneurship, because individuals possessing wealth – personal or family wealth – do

not necessarily need to request money from banks and can self-finance the start-up process. Furthermore, they are able to bridge the gap when revenues or profits are not made during the gestation process. However, individuals with very high wealth levels probably choose other careers and might rather function as angel investors and are less likely to start their business (see also Kim et al., 2007). In contrast, there are individuals who hardly possess personal wealth, for instance they do not own a house, do not hold stocks or insurance policies, and some have few career options. Consequently, this group may have to choose self-employment out of necessity. Initial capital requirements depend on the type of business; some industries do not require a high level of start-up capital. Furthermore, not personal but rather household wealth may be relevant for entrepreneurship. A house, insurance policies or other tangible assets are often possessed by more than one person, for instance a married couple. Therefore, I expect a positive curvilinear relationship between household wealth and the likelihood of being a nascent entrepreneur.

Personal or household income may be another determinant for individuals to attempt self-employment. Employees at higher income levels may find the opportunity costs too high to give up wage-employment due to uncertainty over potential income from business ownership. Kim et al. (2007) found that neither household wealth nor household income increased the likelihood of becoming a nascent entrepreneur. Hamilton (2000) as well as Moskowitz and Vissing-Jørgensen (2002) found that individuals achieved higher earnings from wage and salary than from self-employment in the U.S. This result is rather puzzling and raises questions as to why people become entrepreneurs. One possible explanation might be the existence of large non-pecuniary benefits associated with self-employment. The results are different for Germany. Constant and Zimmermann (2006) found that native German employees earn less than their self-employed counterparts. The wage difference is even greater for immigrants, earnings from paid-employment are on average 40% lower than earnings from self-employment. The income differences are also found by the German

Federal Statistical Office. The yearly net income of households, with a self-employed as principal wage earner, was on average 51,000 € in 2002. In contrast, households with a white-collar worker as main earner received on average 23,700 € and households of blue collar workers on average 17,400 €. Consequently, starting a business may be a response to a higher potential income from self-employment and especially for immigrants a way out of discrimination. Besides, the gestation process often takes place while the nascent entrepreneur is still employed; therefore, employees at lower income levels are less likely to be able to finance the start-up process. I propose either a positive or a positive curvilinear relationship between household income and the likelihood of being a nascent entrepreneur.

4. Data and descriptive statistics

4.1. Sample and data source

Data on nascent entrepreneurs are taken from the German Socio-Economic Panel Study (SOEP) conducted by the German Institute for Economic Research (DIW). The SOEP is a representative longitudinal panel study of private households in Germany which started in 1984 and is carried out annually. Households in East Germany were included in the survey starting in 1990. For this analysis, the survey from 2003 is used to identify nascent entrepreneurs. Nevertheless, relevant questions from earlier years are used as part of the panel dataset. There are different reasons to select only respondents from the 2003 survey.¹ First, while most questions are asked annually, some questions are only asked in specific years or at specific time intervals. The main question which makes it possible to classify a respondent as a nascent entrepreneur was introduced in 1998, changed significantly in 1999 and has been asked biennially since then. Other relevant questions, for instance, on risk behavior were asked in 2004 for the first time and questions on personal assets and liabilities in 2002. Secondly, due to the attrition of respondents over time, it appears reasonable to analyze not the nascent entrepreneurs of the years 1999 or 2001 when the ques-

tion about risk behavior was only included in 2004. The third reason is the availability of the regional data for the entrepreneurial environment. In 1998, the new industry classification, NACE (the statistical classification of economic activities in the European Community), was used for the first time. This came along with an abrupt increase in the number of new businesses. The reasons are rather unclear but it is suspected that already existing branches of businesses were given their own industry code; therefore, they were counted as a new business. Furthermore, in order to identify young and small firms, for instance small firms that are at least three years old, entry cohorts were considered. In order to obtain reliable data on entry cohorts, data before 1999 is not considered. Therefore, the pool of young and small firms in 2003 consists of entries of the years 1999–2002.

The survey contains demographic characteristics such as gender, age, education, data on the respondent's employment status, work experience, and some basic characteristics of the current employer. Some data is on entrepreneurial activities, namely the interviewees were asked if they are currently self-employed, or if they plan to become self-employed. The SOEP database has been used several times to analyze the issue of self-employment. For instance, the recent study by Constant and Zimmermann (2006) analyzed the characteristics of the self-employed immigrant and German males. Pfeiffer and Reize (2000) analyzed the transition from unemployment to self-employment.

The specific question of interest for this study is *how likely it is that the respondents will change their career and have become self-employed and/or freelance, and/or have become a self-employed professional within the next two years* is used to identify nascent entrepreneurs. The individuals were asked to self-estimate the probability of such a change according to a scale from 0 to 100% in increments of ten; with zero indicating that such a change will definitely not take place and 100 meaning that such a change will definitely take place. In 2003, data were collected from 22,611 persons throughout Germany, from which 18,118 persons are between the ages of 18 and 64. About 43% of the respondents were blue- or white-collar workers, less than 5% were civil servants. Almost

25% were retired and about 8% of the employable respondents (age 18–64) were unemployed. The analysis was restricted to those individuals who were employed and between 18 and 64 years old in 2003. Respondents who were civil servants, already self-employed, or out of the labor force (i.e. unemployed, retired, or full-time student) as well as respondents with relevant missing data were excluded from the dataset; leaving 9506 persons: 2421 in East and 7149 in West Germany.

4.2. *Nascent entrepreneurs (dependent variable)*

The Global Entrepreneurship Monitor (GEM) and the Panel Study of Entrepreneurial Dynamics (PSED) clearly classify individuals as nascent entrepreneurs if they are on the day of the interview individually or with others actively involved in starting a new business that will at least partly belong to them. Additionally, they should not have paid full time wages or salaries for more than three months to anybody (Reynolds et al., 2004a, b). Particularly, these individuals are at a phase where they start looking for a location, organizing a start-up team, developing a business strategy, or searching for financial capital. They are not yet at a stage where they pay salaries, exchange products or services with customers; hence, they are still in the gestation stage of the start-up process. Furthermore, it is not definite if they will ever actually start their own firm. Empirical studies could show that up to 25% of the nascent entrepreneurs are no longer trying to set-up a firm the next year, only between 30 and 50% operate their own business the next year (Parker, and Belghitar 2007; van Gelderen et al., 2001).

The German Socio-Economic Panel does not specifically ask if the respondent is actively engaged in the start-up process at the time of the interview, as it is asked in the GEM or PSED surveys. Therefore, the individuals are classified as nascent entrepreneur regarding to their self-reported intention to become self-employed. On the one hand, about 77% of the employees definitely do not consider becoming self-employed within the next two years in the year 2003. On the other hand, 1% of the respondents are definitely certain that they will become self-employed. Certainly it is implausible to assume

that all interviewees who are somehow likely to become self-employed within the next two years should be considered nascent entrepreneurs. Employees estimating their probability to 10 or 20% are less likely to be already actively involved in starting a new business, however they might have taken it into consideration or might be less averse to it. These individuals might be characterized as latent entrepreneurs (Blanchflower et al., 2001).

The crucial and difficult question lies in separating the nascent entrepreneurs from the rest of the sample. The panel character of the SOEP allows a comparison of the self-reported intention with the actual outcome. The employees of the year 2003 are examined more closely. Unsurprisingly, those employees who self-estimated a higher propensity to enter self-employment were more likely to become self-employment the next year. About 15% of the 2003 employees with a reported probability of at least 90% became self-employed in 2004. If all respondents with a reported probability of at least 50% are considered as nascent entrepreneurs the transition rate decreases to about 5%.² The comparison of the self-reported probabilities and the actual outcome indicates a distinctive break between the self-reported probability of 60 and 70%: about 8% of the 70% group became self-employed and only about 4% of the 60% group (Table I). Nevertheless, the examination also finds that respondents who rated their transition probability to be zero account for 36% of the actual self-employed in the following years. This result is puzzling since these individuals must have completely changed their mind from not considering self-employment as a career choice to actually being self-employed. This phenomenon should be kept in mind when classifying respondents as nascent entrepreneurs. Moreover, I would like to point out that the self-reported intention towards self-employment is less likely to capture a general interest or desire in a job change. The respondents were also asked to estimate how likely it is that they, for instance, look for a new job on their own initiative, lose their job, receive a promotion, are demoted at their current place of employment, or retire. Therefore, self-employment is only one option amongst others. Thus, individuals who

are unsatisfied with their current job or life in general do not automatically uprate their intention to become self-employed.

The nascent entrepreneurship rates differ greatly depending upon which threshold is used. The rate is rather high, 6.4%, when all respondents with a self-estimated probability of at least 50% are classified. If the threshold is raised to 60% or 70%, the rate is narrowed to 3.35 and 2.84%, respectively. These results are comparable to the nascent entrepreneurship rate found by the GEM survey and by the German Regional Entrepreneurship Monitor reporting a rate of about 3.5% for the years 2003 and 2004 (Sternberg and Lueckgen, 2005; Wagner 2004). Knowing that 36% of the newly self-employed in 2004, who were paid-employees in 2003, estimated that they would definitely not be self-employed within the next two years the threshold should probably not be too high. The empirical analysis differentiates between two kinds of nascent entrepreneurs: employees who estimated their intention for at least 50%; and second employees who reported a probability for at least 70%. In the former case, the dependent variable is equal to one if the individual reports an intention of at least 50% and is equal to zero otherwise. In the second case, the dependent variable is equal to one if the indi-

vidual reports an intention of at least 70% and is equal to zero otherwise. I would like to emphasize that the nascent entrepreneurship rates derived from the SOEP are not fully comparable to either the GEM rates or PSED rates, but the rates are rather complementary.

4.3. Entrepreneurial environment

The individual data is linked with data, which characterizes the regional entrepreneurial environment of each respondent. Information on small, young and new businesses is from the establishment file of the German Social Insurance Statistics (as documented by Fritsch and Brixy, 2004). Since the database reports only businesses with at least one employee, start-ups consisting of only owners are not included. For this analysis, firms are defined as young and small firms if they are no more than three years old and had no more than 20 employees at the time the new venture was founded. The presence of newly founded ventures as well as the presence of young and small firms is measured by either start-ups or small and young firms per 1000 population (inhabitants age 20–59) or by their share of all firms. The variables on the entrepreneurial environment report slightly higher values for the group of nascent entrepreneurs compared to employees. However, the mean values significantly differ only between nascent entrepreneurs with an intention of at least 50% and the comparison group of employees. The self-employment rate in a region could be considered as an indicator of entrepreneurial environment as well. However, many self-employed are the owner of an older firm and they are not confronted with problems arising during the start-up phase. Therefore, they may not be seen as role model for potential starters. The mean values of the self-employment rates hardly differ for both groups and a mean comparison test revealed no significant differences.

4.4. Human, social and financial capital

The average nascent entrepreneur is fairly well educated and the average years of education are 12.5 years. Interestingly, about 30% of the nascent entrepreneurs gained managerial

TABLE I
Self-estimated probabilities and actual self-employment in the following years

Self-reported probability to become self-employed within next 2 years	Respondents in 2003	
	Number (share) of individuals	Number (share) of individuals self-employed in 2004
0%	7354 (77.36%)	35 (0.48%)
10%	789 (8.30%)	5 (0.63%)
20%	404 (4.25%)	4 (0.99%)
30%	233 (2.45%)	4 (1.72%)
40%	117 (1.23%)	3 (2.56%)
50%	291 (3.06%)	13 (4.47%)
60%	48 (0.50%)	2 (4.17%)
70%	74 (0.78%)	6 (8.11%)
80%	66 (0.69%)	4 (6.06%)
90%	31 (0.33%)	5 (16.13%)
100%	99 (1.04%)	15 (15.15%)
Total	9506 (100.00%)	96 (1.01%)

experience. In this case, the employee is, for instance, the head of a department or a managing director. The interviewees were asked to classify the size of their current employer by the number of employees. Possible categories are less than five, 5–19, 20–99, 100–199, and at least 200 employees. Unfortunately, the respondents do not specify the firm age, which would have allowed for analyzing the impact of young and small firms; consequently only small firms could be identified. Nascent entrepreneurs are more often employed in small firms than employees. Thirty percent of nascent entrepreneurs worked in a firm with less than 20 employees compared to 25% of the employees. This relationship is inverted if work experience in firms with at least 200 employees is considered. Combining the two characteristics managerial functions and working in a small firm reveals that 8% of nascent entrepreneurs meet both criteria.

Individuals, who are more certain about becoming self-employed, are more likely to have gained previous self-employment experience. About 4% of the nascent entrepreneurs with an intention of at least 70% have been self-employed before. In order to qualify as an employee with self-employment experience, the individual had to be self-employed for at least two years between 1994 and 2002. Furthermore, about 17% of the nascent entrepreneurs had parents who were self-employed when he/she was 15 years old and about 12% live together with a spouse or partner (or another household member) who is currently self-employed. If the threshold is set at 50%, both values are slightly lower. Regarding financial capital, the average monthly household income of nascent entrepreneurs was 4800 € about 600 € more than employees who did not attempt to start a business. The value of household assets does not significantly differ between nascent entrepreneurs and the control group of employees. Nevertheless, financial assets are slightly higher for nascent entrepreneurs (Table II).

4.5. *Miscellaneous variables*

The empirical models also control for age, gender, risk behavior, marital status and German citizenship. Nascent entrepreneurs are more

likely to be male and the average nascent entrepreneur is 37 years old. The average employee of the control group is 33 years old. In regards to gender, many studies have shown that men are more likely to become self-employed (see Wagner, 2004 or Delmar and Davidsson, 2000 for an overview). Pertaining to the impact of an individual's age on the decision to become an entrepreneur, various arguments support both negative and positive relationships (Parker, 2004, pp. 70–72). For example, elderly employees should possess relatively more human and physical capital needed for entrepreneurship, as they had time to accumulate respective knowledge and wealth. Furthermore, older people have established networks and enlarge their ability to identify opportunities (Evans and Jovanovich, 1989; Parker, 2004; Wagner, 2004). Yet, starting a new business bears the risk of failure and bankruptcy. Therefore, it can be expected that persons will not start a business if they are close to retirement age. Their opportunity costs become too high while the payback period shortens, hence, indicating a negative sign. Van Praag and van Ophem (1995) found that even if the opportunity to start a business increases for older workers, they are less willing to become self-employed. A positive curvilinear relationship between age and nascent entrepreneurship is assumed.

In 2004, questions about risk behavior were included for the first time (Dohmen et al., 2005). One question was about the general willingness to take risks, other questions were about the willingness to take risk in specific domains – car driving, financial matters, leisure and sports, career, and health. Dohmen et al. (2005) found evidence of heterogeneity across individuals. A complementary field experiment leads to the conclusion that the general risk question is a good predictor of actual risk-taking behavior. According to the descriptive statistics nascent entrepreneurs are less averse to risk than employees, Starting a business is associated with risk and uncertainty, therefore, individuals with a greater pro-risk attitude are expected to have a higher likelihood to become a nascent entrepreneur. Other control variables are being married and German citizenship. Nascent entrepreneurs are less likely to be married, with only 50% of

them married, while 62% of employees are married. About 90% of employees and nascent entrepreneurs have German citizenship. Nevertheless, 8% of non-German citizens indicated their probability to become self-employed with at least 50% compared to 6% of the respondents with German citizenship. However, the difference is only weakly significant.

5. Results of the econometric study

It was hypothesized that the social local entrepreneurial environment influences the decision

whether to engage in the start-up process or not. At first sight the results are somewhat surprising, the impact of the entrepreneurial environment depends on the threshold applied regarding the self-estimated probability to become self-employed. Applying a threshold of 50%, the entrepreneurial environment has a significant impact on individuals to be nascent entrepreneurs. However, those individuals who are more certain about becoming self-employed (intention for at least 70%) are not significantly influenced by their social environment (Table - III). The results suggest that the individuals are

TABLE II
Descriptive statistics of nascent entrepreneurs

	Nascent entrepreneur, intention at least 50%		Nascent entrepreneur, intention at least 70%	
	Mean	Std. Dev.	Mean	Std. Dev.
Dependent variable				
Nascent entrepreneurship rate	6.41%	0.24	2.84%	0.17
Independent variables				
<i>Entrepreneurial environment (social environment)</i>				
Start-up rate	5.60*	0.87	5.54	0.85
New firms per 1000 inhabitants	4.26***	0.62	4.22	0.61
Share of small and young firms	13.13**	1.91	13.00	1.86
Small and young firms per 1000 inhabitants	10.01***	1.43	9.89	1.40
<i>Human capital</i>				
Years education	12.62***	3.65	12.54***	3.40
Managerial experience (yes = 1)	30.21%***	0.46	30.00%***	0.46
Working in small firm < 20 employees (yes = 1)	31.03%***	0.46	30.74%**	0.46
Working in medium size firm 20–199 employees (yes = 1)	26.93%	0.44	27.04%	0.45
Working in large firm ≥ 200 employees (yes = 1)	32.02%***	0.47	31.85%***	0.47
Small firm and managerial experience (yes = 1)	8.21%***	0.27	8.15%***	0.27
Previous self-employment experience (yes = 1)	2.96%***	0.17	4.07%***	0.20
<i>Social capital</i>				
Either parent has been in business (yes = 1)	14.61%***	0.35	16.67%***	0.37
Household member currently in business (yes = 1)	9.03%**	0.29	11.85%***	0.32
<i>Financial capital</i>				
Value of household assets – positive (1000 €)	291.39	710.02	326.99	930.64
Value of household assets – net (1000 €)	222.22	657.60	263.24	877.64
Gross income of household (€)	4721.34***	3481.26	4796.59***	3674.40
<i>Control variables</i>				
Male	59.61%***	0.49	56.30%*	0.50
Age	36.60***	0.41	36.69***	10.23
Risk taking [0, 10]	5.57***	2.24	5.79***	2.31
German citizenship	89.82%*	0.30	90.37%	0.30
Married	50.08%***	0.50	54.07%**	0.50

Mean comparison test between group of nascent entrepreneurs and employees.

***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

greatly influenceable during the beginning of the decision process about starting a business. Once individuals have reached their decision the social entrepreneurial environment is less important. By controlling only for age, gender, marital status, citizenship and risk behavior each additional new firm per 1000 inhabitants in the region where the individual lives increases the probability of being a nascent by a factor of 1.24 ($0.219e^x$). Each additional small and young firm per 1000 inhabitants leads to an increase by a factor of 1.11 ($0.102e^x$).³ Thus, the hypothesis is partly supported, that individuals are particularly influenced by other entrepreneurs when facing the decision whether to start a firm or not. The more certain individuals are about their behavior, the lesser extent their decision is based on social cues. Including also variables for human, social and financial capital, the impact of the entrepreneurial decreases but the effect is still significant (Table IV).

Similar to the entrepreneurial environment effects, human and social capital effects differ for both classifications of nascent entrepreneurs (Table IV). The models I–III in Table IV classify employees as nascent entrepreneur if the self-reported intention was reported for at least 50%. In this case formal education explicitly measured by years of education has only a small positive significant effect. Each additional year of education increases the probability of being a nascent entrepreneur by a factor of 1.04. The results suggest that formal qualifications are less important than work experience. Work experience in a small firm as well as managerial experience encourages employees to attempt a start-up. Employees with both characteristics, namely individuals with managerial experience in a small company, are three times as likely to be nascent entrepreneurs as employees without any of the two experiences. Interestingly, previous entrepreneurial experience and managerial experience in a small firm seem to be substitutes. When both variables small firm and managerial experience are excluded from the model, the coefficient for previous start-up experiences and its significance increase. It could have been assumed that the entrepreneurial environment is of less importance and significance if the individual already worked in a small firm or even

gained managerial experience in a small firm. However, the results indicate that the entrepreneurial environment as well as working in a small firm spurs individuals on to start a business.

The results indicate that the impact of small firm and managerial experience decreases the more certain an employee is about becoming self-employed (model IV–VI). If the threshold is set at 70% in order to classify employees as nascent entrepreneurs, small firm experience or managerial experience do not significantly affect the likelihood to be a nascent entrepreneur. Nevertheless, the impact of previous self-employment experience is stronger and more significant for the likelihood to be a nascent entrepreneur. Employees who used to be self-employed are then 2.5 times more likely to attempt another start-up as employees without self-employment experience. This finding is consistent with Davidsson and Honig (2003). According to their analysis, individuals with previous start-up experience are twice as likely to be a nascent entrepreneur as others. Therefore, previous experience in self-employment does not discourage attempting another start-up – it encourages such behavior. On the contrary, analyzing the PSED survey Kim et al. (2007) found individuals who were involved in previous start-ups to be less likely to take part in another formation of a business.

The results support the hypothesis that social capital is positively associated with nascent entrepreneurship. Employees whose parents have been self-employed are about 1.5 times as likely to attempt starting a business compared to others. The probability increases with the self-reported intention to become self-employed. The results confirm that children of self-employed parents often follow their footsteps, trying to start a business. Interestingly, if a household member is currently self-employed, the probability to be a nascent entrepreneur also increases. However, the positive relationship only exists for those individuals who are more certain about becoming self-employed, namely if the threshold is set at 70%. Davidsson and Honig (2003) also found that having parents in business, being encouraged by friends or family as well as having a close friend or neighbor in

TABLE III
The impact of the entrepreneurial environment

	Nascent entrepreneur, intention at least 50%				Nascent entrepreneur, intention at least 70%			
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
<i>Entrepreneurial environment</i>								
Share new firms	0.089* (1.92)	—	—	—	−0.001 (0.02)	—	—	
New firms per 1000 inhabitants	—	0.219** (2.73)	—	—		0.063 (0.62)		
Share of small and young firms	—	—	0.046* (2.06)	—	—		0.004 (0.14)	
Small and young firms per 1000 inhabitants	—	—	—	0.102** (3.04)				0.035 (0.81)
<i>Control variables</i>								
Gender ($m = 1$)	0.230* (2.20)	0.232* (2.23)	0.230* (2.20)	0.233* (2.23)	0.016 (0.11)	0.018 (0.12)	0.016 (0.11)	0.018 (0.12)
Age	0.106** (4.27)	0.107** (4.25)	0.106** (4.25)	0.107** (4.23)	0.086* (2.09)	0.086* (2.09)	0.086* (2.09)	0.086* (2.08)
Age ²	−0.002** (5.21)	−0.002** (5.21)	−0.002** (5.19)	−0.002** (5.19)	−0.001** (2.63)	−0.001** (2.63)	−0.001** (2.62)	−0.001** (2.63)
Risk taking [0, 10]	0.176** (7.94)	0.176** (7.89)	0.176** (7.94)	0.176** (7.88)	0.233** (6.48)	0.233** (6.48)	0.233** (6.48)	0.233** (6.47)
Married	−0.299** (2.70)	−0.288** (2.64)	−0.297** (2.68)	−0.287** (2.63)	−0.047 (0.30)	−0.041 (0.27)	−0.046 (0.30)	−0.39 (0.26)
German citizenship	−0.300 (1.90)	−0.306 (1.91)	−0.298 (1.89)	−0.302 (1.88)	−0.198 (0.83)	−0.200 (0.84)	−0.198 (0.83)	−0.199 (0.84)
Constant	−5.190** (9.40)	−5.621** (9.29)	−5.290** (9.50)	−5.704** (9.49)	−5.578** (7.09)	−5.843** (7.03)	−5.635** (7.21)	−5.919** (7.15)
Pseudo R^2	0.0438	0.0451	0.0441	0.0455	0.0404	0.0406	0.0404	0.0406
Wald χ^2	173.64**	176.83**	178.26**	180.76**	67.44**	68.53**	69.06**	69.98**
Log likelihood	−2163.31	−2160.42	−2162.78	−2159.64	−1178.04	−1177.87	−1178.03	−1177.77
Observations	9506	9506	9506	9506	9506	9506	9506	9506

Robust standard errors, adjusted for 97 regions.

**Significant at 1% level; *Significant at 5% level.

TABLE IV
Nascent entrepreneurs: impact of entrepreneurial environment, human capital, social capital and financial capital

	Nascent entrepreneur (intention at least 50%)			Nascent entrepreneur (intention at least 70%)		
	(I)	(II)	(III)	(IV)	(V)	(VI)
<i>Entrepreneurial environment</i>						
New firms per 1000 inhabitants	–	0.170** (2.18)	–	–	0.018 (0.18)	–
Small and young firms per 1000 inhabitants	–	–	0.077** (2.34)	–	–	0.012 (0.29)
<i>Human capital</i>						
Years education	0.044** (2.39)	0.042** (2.28)	0.042** (2.27)	0.028 (1.34)	0.028 (1.31)	0.028 (1.31)
Previous self-employment experience (yes = 1)	0.494* (1.79)	0.494* (1.80)	0.493* (1.80)	0.812** (2.22)	0.812** (2.22)	0.812** (2.22)
Work experience in small firm (yes = 1)	0.335*** (3.02)	0.332*** (2.98)	0.331*** (2.98)	0.231 (1.30)	0.230 (1.29)	0.230 (1.29)
Managerial experience (yes = 1)	0.310*** (2.63)	0.303*** (2.56)	0.302** (2.55)	0.320 (1.62)	0.319 (1.61)	0.318 (1.61)
Managerial experience in small firm (yes = 1)	0.520** (2.46)	0.530** (2.49)	0.531** (2.49)	0.456 (1.55)	0.457 (1.55)	0.457 (1.55)
<i>Social capital</i>						
Either parent has been in business (yes = 1)	0.382*** (2.57)	0.387*** (2.59)	0.387*** (2.58)	0.482*** (2.85)	0.483*** (2.86)	0.483*** (2.86)
Household member currently in business (yes = 1)	0.102 (0.68)	0.101 (0.67)	0.102 (0.68)	0.390** (2.07)	0.390** (2.07)	0.390** (2.07)
<i>Financial capital</i>						
Value of household assets (1000 €)	0.0001 (0.75)	0.0001 (0.80)	0.0001 (0.77)	0.0001 (0.52)	0.0001 (0. 53)	0.0001 (0.53)
Value of household assets ² (1000 €)	–5.85e–09 (0.93)	–5.79e–09 (0.92)	–5.62e–09 (0.89)	–1.41e–07 (0.49)	–1.41e–07 (0.49)	–1.41e–07 (0.50)
Total gross income of household (1000 €)	0.048*** (2.81)	0.047*** (2.75)	0.047*** (2.73)	0.041** (1.98)	0.041** (2.00)	0.041** (1.99)

TABLE IV
continued

	Nascent entrepreneur (intention at least 50%)		Nascent entrepreneur (intention at least 70%)		
	(I)	(II)	(III)	(IV)	(V)
<i>Control variables</i>					
Gender ($m = 1$)	0.204* (1.94)	0.209** (1.99)	0.209** (1.99)	-0.008 (0.05)	-0.007 (0.05)
Age	0.082*** (2.92)	0.084*** (2.94)	0.083*** (2.93)	0.071 (1.60)	0.071 (1.60)
Age ²	-0.001*** (4.09)	-0.001*** (4.12)	-0.001*** (4.10)	-0.001** (2.26)	-0.001** (2.27)
Risk taking [0, 10]	0.159*** (7.06)	0.158*** (7.01)	0.159*** (7.01)	0.215*** (5.88)	0.215*** (5.87)
Married	-0.339*** (2.91)	-0.324*** (2.82)	-0.322*** (2.81)	-0.066 (0.41)	-0.064 (0.40)
German citizenship	-0.468*** (2.98)	-0.471*** (2.98)	-0.466*** (2.94)	-0.355 (1.50)	-0.354 (1.49)
Constant	-4.887*** (8.79)	-5.582*** (8.58)	-5.626*** (8.70)	-5.733*** (7.30)	-5.807*** (6.40)
Pseudo R^2	0.0685	0.0696	0.0698	0.0635	0.0635
Wald χ^2	312.41***	322.13***	319.20***	178.38***	178.51***
Log likelihood	-2107.59	-2104.99	-2104.66	-1149.71	-1149.67
Observations	9506	9506	9506	9506	9506

Robust standard errors, adjusted for 97 regions

***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

business increases the odds of being a nascent entrepreneur. According to their results, the strongest social capital effect is based on having close friends or neighbors in business. Individuals fitting this profile are twice as likely to attempt to start a business compared to others. On the contrary Kim et al. (2007) found no association of entrepreneurial involvement among family and being a nascent entrepreneur.

The results for financial capital suggest that household assets are not associated with being a nascent entrepreneur; however household income slightly increases the probability. The relationship between household income and the likelihood of being a nascent entrepreneur was not found to be positive curvilinear, but positive monotone. Each additional 1000 € of monthly gross household-income increases the probability of being a nascent by a factor of 1.05. The log odds indicate that the effect is almost negligible. The significance of the coefficient also decreases with a higher threshold. An interpretation for the insignificant association between household assets and likelihood of being nascent entrepreneur could be that starting a firm does not condition financial resources. Individuals do not have a higher probability to attempt starting a business just because they own a house, hold stocks or insurances. Additionally, most start-ups are small and set up in retail or service related industries with little financial capital needed. Similar to Kim et al. (2007) I conclude that financial resources do not have a strong association with being a nascent entrepreneur.

Among the control variables, the impact of risk behavior confirms the expectations. Individuals who are more willing to take risks are more likely to attempt a start-up than risk averse employees. Furthermore, the effect of risk behavior is stronger for the group of nascent entrepreneurs when the threshold is set at 70%. None of the other control variables are significant for the 70% group. Regarding the 50% group of nascent entrepreneurs, the difference between women or men to pursue self-employment is not very strong. Men are 1.2 times as likely as women to be a nascent entrepreneur. Interestingly, the gender effect is stronger and more significant as long as the model does not include variables for human, social, and finan-

cial capital (Table III). As soon as women have gained managerial experience, small firm experience, or their parents were self-employed they do not have a significantly lower likelihood of being a nascent entrepreneur. The relationship between age and nascent entrepreneurship is positive curvilinear. Employees are most likely to be nascent entrepreneurs at the age of 41 and the probability decreases afterwards. Being married and having a German citizenship has a significant negative effect. This result suggests that especially employees with, for instance, Turkish, Italian or Greek citizenship perceive self-employment as a valuable career option.

6. Concluding remarks

This paper investigated the effect of the local entrepreneurial activity, namely the presence of new as well as young small firms, on the entrepreneurial decision of individuals. I attempted to answer this question by combining individual data on nascent entrepreneurs with regional data on entrepreneurial activity. Therefore, this paper complements both those studies that concentrate on individual characteristics and those which evaluate determinants of regional new firm formation activity. A pronounced level of entrepreneurial activity in the local environment may not only reduce the level of ambiguity associated with self-employment faced by an individual, but also increase the legitimacy of this career option by signaling that running a business is a valuable source of reward.

The principal findings are fourfold. First, individuals are embedded in their local entrepreneurial environment which influences an individual especially at the beginning of the decision process about whether to become self-employed. Nevertheless, once the entrepreneurial desire is established, the importance of role models decreases. Secondly, work and previous self-employment experience is more important than formal education for the likelihood of being a nascent entrepreneur. Particularly, an entrepreneurial attitude is related to working in a small firm with managerial responsibilities and may substitute previous self-employment experience. Thirdly, social capital is an important stimulus for nascent entrepreneurs. If either

parent has been self-employed the probability of being a nascent entrepreneur increases by a factor of 1.5. Finally, the results indicate that financial assets are less important for nascent entrepreneurs, thus the findings of Kim et al. (2007) are confirmed. Nevertheless, my findings indicate that self-employment may be more attractive for employees in higher income brackets.

In terms of policy implications, this paper underlines that regions with a strong tradition of entrepreneurial activity are able to perpetuate entrepreneurship over time and across individuals. Furthermore, this paper attempts to shed light on the black box of regional persistency of entrepreneurial activity by suggesting that individuals are most likely influenced in their entrepreneurial decision when they are not yet totally certain about becoming self-employed. Thus, the power of entrepreneurial role models and programs to increase entrepreneurial awareness seems to be greater when entrepreneurial opportunities first strike these individuals.

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Notes

¹ A cross-sectional time series analysis is rather problematic and might be misleading. Firstly, respondents are considered if they are paid-employees and not already self-employed. Since most respondents decide within the next two years if they transit to self-employment, employees in 2003 might be biased towards employees that did not consider or choose self-employment in 1999 and 2001. Thus this group may represent employees that might never choose self-employment.

² The basic pattern remains the same if respondents of the year 2001 are considered. Twenty percent of the respondents, who reported a probability of at least 90%, became self-employed the next two years. The transition rate decreases to 5% if only respondents with a self-reported intention of at least 50% are considered.

³ Becoming an entrepreneur or being a nascent entrepreneur is a rare event. Less than 7% of the employees in the dataset can be considered nascent entrepreneurs. Therefore, the regressions could also be carried out using rare events logistic regression model, which has been developed by King and Zeng (2001). However, because the coefficients and the standard errors were very similar between the two models, the logistic regression results are presented since it is more widely used. The variances of the estimated coefficients were estimated with the planning region as a cluster since it can be assumed that individuals may be dependent within the planning region they live in.

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