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Der Noth gehorchend, nicht dem eignen Trieb^{ech}: nascent necessity and opportunity entrepreneurs in Germany: evidence from the Regional Entrepreneurship Monitor (REM)

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*“Der Noth gehorchend, nicht dem eignen Trieb” -
Nascent Necessity and Opportunity Entrepreneurs
in Germany: Evidence from the *Regional
Entrepreneurship Monitor (REM)**

Joachim Wagner

May 2005

“Der Noth gehorchend, nicht dem eignen Trieb”
Nascent Necessity and Opportunity
Entrepreneurs in Germany: Evidence from the
Regional Entrepreneurship Monitor (REM)

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ABSTRACT

“Der Noth gehorchend, nicht dem eignen Trieb” – Nascent Necessity and Opportunity Entrepreneurs in Germany: Evidence from the *Regional Entrepreneurship Monitor (REM)**

Using a large recent representative sample of the adult German population this paper demonstrates that nascent necessity and nascent opportunity entrepreneurs are different with respect to some of the characteristics and attitudes considered to be important for becoming a nascent entrepreneur, and that they behave differently. Given the lack of longitudinal data, however, we have no information about the performance of entrepreneurs from both groups in the longer run.

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1. Motivation

Everybody who has to work for his living has the choice between working as a paid employee (or to look for a paid job while being unemployed and living from savings or public assistance) or to set up his own business (alone or with others). The decision taken depends on the expected outcomes of both alternatives. Those who expect a better life as a self-employed compared to working for someone else will become entrepreneurs, and those who do not will not. Technically speaking, the decision between self-employment and paid employment is the result of a comparison between the discounted expected life-time utility (DELU) of the two alternatives. The DELU of an alternative depends on its monetary and non-monetary returns (including cash income, and stress or fun on the job), which in turn depend on individual and other factors like human capital, motivation, degree of risk aversion, and overall business conditions. Factors influencing the DELU can change over time, and this may lead to a different result when DELU of working as a paid employee and of being self-employed are compared. The sign of the difference between these two DELUs may change, and the decision for one of the two alternatives may change accordingly. If as a consequence the difference turns out now to be in favor of self-employment instead of paid employment, a rational person will start to build his own venture – he will become what is called a *nascent entrepreneur*.

More formally, and following the definition used in the Panel Study of Entrepreneurial Dynamics (PSED) (Reynolds 2000, p. 170f.) and in the Global Entrepreneurship Monitor (GEM) (Reynolds et al. 2005), a *nascent entrepreneur* is defined as a person who is now trying to start a new business, who expects to be the owner or part owner of the new firm, who has been active in trying to start the new firm in the past 12 month, and whose start-up did not have a positive monthly cash flow that covers expenses and the owner-manager salaries for more than three month. (Note that self-employed who are active in starting

another new venture are not counted as nascent entrepreneurs here.) Nascent entrepreneurs are widely discussed in the emerging literature on the microeconomics and microeconometrics of entrepreneurship and self-employment (see Wagner 2004a for a survey).

Changes in DELUs of the alternatives in a person's choice set can have various reasons. If we consider changes that lead to a positive difference between the DELU for being self-employment compared to working as a paid employee, we can distinguish between two "pure" cases: the DELU from working as a paid employee decreases sharply (think of a worker who lost his job due to a plant shutdown and who did not find a new job during a search period of several months), or the DELU from becoming self-employed increases sharply (think of an engineer who makes an invention in his spare time that he is convinced of to have the potential to become the basis of a best-selling product). These two alternatives lead to two different types of nascent entrepreneurs: If, on the one hand, someone starts his own business because he sees no better alternative to earn a living; he is labeled a *nascent necessity entrepreneurs*. If, on the other hand, she starts a new venture to realize a business idea, she is labeled a *nascent opportunity entrepreneur*.

According to the Global Entrepreneurship Monitor (GEM) surveys conducted in 2004, the relation of nascent opportunity entrepreneurs to nascent necessity entrepreneurs was three to one on average in the 34 participating countries, and 2.2 to one in Germany, while it was, for example, eight to one in Spain and the Netherlands, ten to one in Finland, and 19 to one in Belgium (Sternberg and Lückgen 2005, p. 15). Necessity entrepreneurship is much more widespread in Germany than in other highly developed countries. This large share of necessity entrepreneurs in all nascent entrepreneurs is often considered as a case for concern. Folklore has it that new ventures founded by opportunity entrepreneurs can be expected to have much stronger positive long-run effects on the economy in terms of employment, innovation, and growth than start-ups initiated by necessity entrepreneurs. This topic makes headlines in Germany because start-ups were booming in the recent past, not least because

former unemployed who decide to become self-employed receive subsidies (either a so-called bridging allowance, or payments under the so-called “Ich-AG” – or “Me-Inc.” - program), and these necessity start-ups are often expected to be short-lived and not successful due to a lack of entrepreneurial ability, elementary business knowledge etc. by the founders (see, e.g., Deutscher Industrie- und Handelskammertag 2005).

Empirical evidence about differences between nascent necessity and nascent opportunity entrepreneurs, however, is scarce. While we have some descriptive information on these issues from the GEM reports (see Acs et al. 2005, and Minitti, Arenius and Langowitz 2005, for the most recent issues) and the country reports (for Germany, see Sternberg and Lückgen 2005), to the best of my knowledge there is no econometric investigation that tests for differences in characteristics and attitudes related to entrepreneurship between nascent necessity and opportunity entrepreneurs. Furthermore, we have no information about differences in the post entry performance of start-ups by necessity and opportunity entrepreneurs.

While we can not deal with the topic of post entry performance in this paper due to the lack of longitudinal data, we can contribute to the literature by using data from a recent representative survey of the adult population in Germany to investigate how nascent necessity entrepreneurs and nascent opportunity entrepreneurs differ from each other, and from the rest of the adult population on the labor market, and whether there is a typical nascent necessity or opportunity entrepreneur with a typical set of characteristics. Results from this empirical exercise are then used to discuss whether large differences in the performance of new ventures founded by necessity and opportunity nascents are to be expected.

2. Necessity and opportunity nascent entrepreneurs in Germany, Summer 2003

Information on nascent necessity and opportunity entrepreneurs are not available from official statistics. This paper uses data that were collected as part of the project *Regional Entrepreneurship Monitor (REM) Germany*. REM was started in 2000 with a focus on the differences in entrepreneurial activities between German regions. A telephone survey of a representative sample of the adult population in eleven regions was conducted in the Summer of 2003, collecting data from 12.000 persons (for details, see the REM report by Lückgen and Oberschachtsiek 2004). According to this survey in the Summer of 2003 the share of nascent entrepreneurs in the adult population (aged 18 to 64 years) in Germany was three percent. 104 (or 29.8 percent) of the 349 people that were identified to be nascent entrepreneurs (according to the definition given in the introductory section) in our survey stated that they start their own business because they do not have a better alternative to earn a living; these nascents are labeled *nascent necessity entrepreneurs*. 217 (or 62.2 percent) agreed that they start a new venture to realize a business idea, and they are labeled *nascent opportunity entrepreneurs*. Note that only 28 nascents could or would not decide among these two alternatives. Note further that the relation of 2.09 nascent opportunity entrepreneurs to one nascent necessity entrepreneur is nearly identical to the relation of two to one reported in the GEM Germany 2004 study mentioned in the introductory section.

Are nascent necessity entrepreneurs and nascent opportunity entrepreneurs different from each other, and from the rest of the adult population on the labor market, and is there a typical nascent necessity or opportunity entrepreneur with a typical set of characteristics? Table I reports mean values and standard deviations of selected personal characteristics and attitudes that are expected to be related to entrepreneurial activities for three groups: nascent necessity entrepreneurs, nascent infant entrepreneurs, and a control group made of all people who are either paid employees or unemployed (i.e. all adults which are on the labor market but are neither self-employed nor nascent entrepreneurs).

[Table I near here]

Differences between mean values of the characteristics and attitudes for the three groups will be discussed in turn:

Sex (a dummy variable taking the value one if the interviewee is male). It is a stylized fact that men do have a higher propensity to step into self-employment than women, although the theoretical reasons for this gender specific difference in behavior are still open for debate (see Wagner 2004b). Table I gives the familiar picture: The proportion of men among both nascent necessity and nascent opportunity entrepreneurs is higher than that of women, while the share of men and women among paid employees and unemployed is about the same. Note that the share of men is higher among nascent opportunity entrepreneurs compared to nascent necessity entrepreneurs, but that the difference is not statistically significant at the five percent level. Note further that the difference in shares of men between nascent opportunity entrepreneurs and the control group of paid employees and unemployed is statistically significant, while this is not the case for the shares of men in the two groups of nascents.

Age (measured in years). On the one hand, age is a proxy variable for personal wealth - the older a person is, the longer is the potential period to accumulate wealth. Given that young firms are often constrained by lack of credit because banks usually demand collateral to finance investments, a certain amount of wealth is crucial for starting a new business (see Evans and Jovanovic 1989). This leads to the expectation of a positive impact of age on entrepreneurial activities. On the other hand one has to acknowledge that starting a new business often leads to high sunk costs - think of all the effort to set up a business plan, doing market research, dealing with legal and administrative problems, etc. The shorter the expected life span of the new business, the shorter is the period over which these sunk costs can be earned back. To put it differently, setting up a new business with high sunk costs is more attractive at the age of 45 than at the age of 60, *ceteris paribus*. This leads to the expectation

of a negative impact of age. Given these two opposite influences of age on the propensity to become an entrepreneur it is an empirical question whether one dominates the other, or whether both net out (see Evans and Leighton 1989). According to table I nascent necessity entrepreneurs are older than nascent opportunity entrepreneurs, but not significantly older than paid employees/unemployed, while nascent opportunity entrepreneurs are on average younger than the members of both other groups.

In two recent papers Lazear (2002, 2004) proposed the jack-of-all-trades view of entrepreneurship. Based on a coherent model of the choice between self-employment and paid employment he shows that having a background in a large number of different roles increases the probability of becoming an entrepreneur. The intuition behind this proposition is that entrepreneurs must have sufficient knowledge in a variety of areas to put together the many ingredients needed for survival and success in a business, while for paid employees it suffices and pays to be a specialist in the field demanded by the job taken. The variety of professional experience of an interviewee that is at the heart of Lazear's theory of entrepreneurship is measured by two variables:

Number of fields of experience. The survey includes a tailor-made question asking in how many different professional fields the interviewee has been active in the past, explaining that this does not mean the number of employers she/he worked for.

Number of professional degrees. The survey collects information about professional degrees completed after school, i.e. whether or not the interviewee successfully passed apprenticeship, managed to qualify formally as a master craftsperson, or received a degree from a polytech or university.

Results reported in table I are broadly in line with Lazear's theory (see Wagner 2003a, 2003b for evidence of the empirical validity of the jack-of-all-trades view in Germany). Both nascent necessity and nascent opportunity entrepreneurs have on average a higher number of fields of experience, and of professional degrees, than paid employees/unemployed, and these

differences are statistically significant at a conventional level for the number of fields of experience. Note that nascent necessity and nascent opportunity do not differ significantly with respect to these two variables.

Fear of failure a reason not to start (a dummy variable taking the value one if the interviewee agreed that fear to fail would prevent him from founding a firm). If the interviewee answered this question in the affirmative we consider this as an indicator of a high degree of risk aversion, and we expect a negative impact on the probability of becoming an entrepreneur (see Kihlstrom and Laffont 1979). Evidence reported in table I supports this view: The share of 'cowards' is smallest among the nascent opportunity entrepreneurs; it is nearly twice as high among the nascent necessity entrepreneurs, and three times as high among the paid employees and unemployed. All these differences are highly significant statistically.

Role model (a dummy variable taking the value one if there is or was at least one self-employed in the family of the interviewee). We expect a positive impact of contact with such a 'role model'. As Simon Parker (2004, p. 85) puts it, self-employed parents might offer their offspring informal induction in business methods, transfer business experience and provide access to capital and equipment, business networks, consultancy and reputation. Furthermore, children of self-employed parents can be expected to have more pro-business attitudes on average. Again, the results reported in table I are in line with our expectations: The share of interviewees with a role model in the family is highest among the nascent opportunity entrepreneurs, and much lower among the other two. Note that while the difference in this share is highly significant statistically when nascent opportunity entrepreneurs are compared to either nascent necessity entrepreneurs or to paid employees/unemployed, it does not differ significantly between nascent necessity entrepreneurs and paid employees/unemployed.

Unemployment. The survey asked nascent entrepreneurs whether they were unemployed, or feared to become unemployed, when they started their efforts to become self-

employed. All participants were asked whether they were unemployed at the time of the survey. Unemployment is a push factor that is expected to increase the probability to become self-employed because it tends to lower the DELU from paid employment, and we expect this impact to be higher among nascent necessity entrepreneurs than among nascent opportunity entrepreneurs. The results reported in table I are in line with these expectations: About one in two among the nascent necessity entrepreneurs is unemployed, compared to about one in five among the nascent opportunity entrepreneurs, and about one in ten in the control group made of people who are on the labor market but neither self-employed or nascent entrepreneurs.

The comparative descriptive evidence reported in table I shows that certain types of individuals are more likely to be involved in creating a new venture, but that individuals from all categories – men and women; young and old people; people with a broad or a narrow professional background; those who do or do not consider fear of failure a reason not to start an own business; people who have or have not at least one self-employed role model in their family, and unemployed or not unemployed people - are involved in entrepreneurship activities to some extent.

On average, and compared to nascent opportunity entrepreneurs, the nascent necessity entrepreneurs are more often female, they are (slightly) older, they consider fear of failure more often a reason not to start an own business (but try to set up their own business nevertheless, because by definition they lack a better alternative), they have less often a role model in their family, and they are more often unemployed. However, necessity and opportunity nascents do not differ with regard to their average number of fields of experience or professional degrees. If, as stated by Lazear (2002), entrepreneurs must have sufficient knowledge in a variety of areas to put together the many ingredients needed for survival and success in a business, members from both groups have on average the same prerequisites. The same holds for another aspect that is often said to be related to success in self-employment (and that is not covered in table I because it makes no sense for the members of the control

group who are either paid employees or unemployed), namely experience as an employee in the field where the new venture is started. 56 percent of all nascent necessity entrepreneurs and 53 percent of all nascent opportunity entrepreneurs stated that they worked in the industry before where they are about to become self-employed. On average, therefore, members of both groups of nascents have the same degree of industry specific experience.

3. What makes a nascent necessity or opportunity entrepreneur?

Although the descriptive evidence discussed in section 2 shows important facts about nascent necessity and opportunity entrepreneurs in Germany it does not reveal the extent to which the various factors considered are interrelated. To give just one example, consider the relationship between gender and nascent entrepreneurship on the one hand, and between risk aversion and nascent entrepreneurship on the other hand. Men are more often involved in creating new ventures than women, and women are known to be more risk avert than men (see Wagner 2004b). What is the *ceteris paribus* effect of being male, and of considering fear of failure a reason not to start an own business, on the propensity of being a nascent necessity or opportunity entrepreneur? Descriptive bivariate comparisons can not reveal this. Multivariate analyses can.

Empirical investigations of the *ceteris paribus* impact of individual (and other) characteristics and attitudes on the propensity to become an entrepreneur are usually – either explicitly or implicitly - based on a theoretical framework that has been sketched in the introductory section, and that can be outlined more formally as follows:

Consider a utility-maximizing individual that has the choice between paid employment and self-employment (taking the decision to participate in the labor market as given). This person will choose the option self-employment if the discounted expected life-time utility

from self-employment ($DELU^s$) is higher than that from paid employment ($DELU^p$). The difference N_i between $DELU^s_i$ and $DELU^p_i$,

$$(1) \quad N_i = DELU^s_i - DELU^p_i$$

therefore, is crucial for the decision of individual i , and it will choose self-employment if N_i is positive. $DELU^s_i$ and $DELU^p_i$ are determined by the expected monetary and non-monetary returns from self-employment and paid employment according to the utility function of the person and the individual's discount rate. Higher returns lead to higher values of DELU.

The expected monetary and non-monetary returns from both types of employment depend on variables like age, having a university degree or not, or the degree of risk-aversion. All these variables are summarized in a vector x_i . Given that N_i depends on $DELU^s_i$ and $DELU^p_i$, and $DELU^s_i$ and $DELU^p_i$ depend on the monetary and non-monetary returns, N_i can be written as a function of x_i :

$$(2) \quad N_i = N_i(x_i)$$

Elements of x_i that have a more positive or less negative impact on $DELU^s_i$ than on $DELU^p_i$ increase N_i (and vice versa). Given that the expected monetary and non-monetary returns from both types of employment, the utility function, and the discount rate of an individual are unknown to an observer, we cannot observe N_i . Therefore, we cannot test directly whether an individual characteristic or attitude (say, a university degree, or a high degree of risk aversion) has a positive impact on N_i or not. If, however, N_i is greater than the critical value zero, according to our theoretical framework a person will choose to become an entrepreneur, and the decision to do so or not is observable.

Empirical models that investigate the ceteris paribus influence of the elements of x_i on the probability that a person is a nascent entrepreneur use this known decision pro or contra. In these models the dummy variable indicating whether a person is an entrepreneur or not is regressed on a set of exogeneous variables made of characteristics and attitudes of the individual. Given the dichotomous nature of the endogeneous variable these empirical models

are estimated by (variants of) logit or probit, and the empirical approach can be labeled a reduced form logit (or probit) approach.

Note that looking at nascent entrepreneurs means focussing on the factors affecting the decision *to become* self-employed as opposed to remaining in paid-employment, instead of looking at differences in the probability that people *are* self-employed rather than employees. In doing this one avoids confounding entry and survival effects: The probability of being self-employed at a point in time depends on the probability of switching into self-employment in the past and then surviving as a self-employed until the time of the survey (see Parker 2004, p. 25f).

While there is a large empirical literature on the *ceteris paribus* impact of personal and other variables on the probability of being an entrepreneur versus a paid employee (surveyed in Parker 2004, ch. 3), econometric investigations that ask what makes a nascent necessity entrepreneur or a nascent opportunity entrepreneur, and that look at the differences between these two groups, are (to the best of my knowledge) missing. Using the data from the REM 2003 survey (mentioned earlier) and the reduced form logit approach outlined above such an investigation is performed next. Before discussing the empirical model used, however, a remark on the estimation strategy used here is in order:

Starting a new business is a rare event. In the sample used here, only 104 of all persons included are nascent necessity entrepreneurs, and only 217 are nascent opportunity entrepreneurs, while 6.995 persons form the control group of paid employees and unemployed. Application of standard textbook probit or logit methods to estimate the empirical models is not appropriate here. Gary King and Langche Zeng (2001a, 2001b) recently developed a version of the logit model to compute unbiased estimates in a situation like this. This method - labeled Rare Events Logistic Regression, or RELOGIT - is applied here. RELOGIT estimates the same logit model as the standard logit procedure, but uses an estimator that gives lower mean square error in the presence of rare events data for coefficients, probabilities, and other quantities of interest. Furthermore, to take the survey

design into account and to allow that the observations might be dependent within a region, the variances of the estimated coefficients were estimated with the region as a cluster.¹ Note that spatial autocorrelation is not an issue in our study because the regions included are scattered all over Germany.

That said, we now turn to the results from the rare events logit estimation of two reduced form type empirical models for being a nascent necessity entrepreneur or a nascent opportunity entrepreneur, respectively. The exogenous variables in these models are identical to those used (and motivated) in the descriptive analysis in section 2 – sex, age, the number of fields of experience, the number of professional degrees, considering fear of failure a reason not to start an own business or not, the presence or not of at least one self-employed in the family, and being unemployed or not. Note that age is included in squares, too, to allow for a non-linear relationship with entrepreneurship. The estimated coefficients and their prob-values are reported in table II.

[Table II near here]

Starting with the results for the probability of being a *nascent necessity entrepreneur vs. a paid employee or unemployed*, note first of all that, contrary to our theoretical expectations, sex, the number of professional degrees, and the presence or not of a role model in the family are not related to the probability of starting a new venture due to the lack of a better alternative to make a living. These results differ from those for nascent opportunity entrepreneurs discussed below. As regards the influence of age on the propensity to become a nascent necessity entrepreneur, the coefficients of both age and age squared are statistically significant at a conventional level. The sign pattern points to an inversely u-shaped relationship between age and the probability to become self-employed. Using the (non-rounded) estimates of the coefficients of the age variables the maximum of the probability lies at 37 years. The coefficients of the number of fields of experience, the variable indicating

¹ All computations were done with Stata/SE 8.2 (see StataCorp 2003) using the RELOGIT ado-file available from Gary King's homepage at Harvard <<http://gking.harvard.edu>>.

high risk aversion, and the dummy variable for unemployment all have the expected signs, and they are statistically different from zero at an error level of less than one percent.

Discussion of results hitherto was limited to the statistical significance of the estimated coefficients and the direction of influence conducted by the variables. Information on the extent of this influence, or on the economic importance, however, is even more important. Evidently, a variable that has no statistically significant impact can be ignored from an economic point of view, but the opposite is not true: A variable that is highly significant statistically might not matter at all economically - if the estimated probability for becoming a nascent entrepreneur diminishes by 0.00001 percent when a person considers fear of failure as a reason not to start a business, we can ignore the "fear of failure" - variable in any discussion on nascent entrepreneurs irrespective of any high level of statistical significance indicated by the prob-value.

Unfortunately, the estimated coefficients from a rare events logit model (or for any other non-linear model) can not easily be used for statements about the size of the ceteris paribus effect of a change of the value of an exogenous variable (e.g., to consider fear of failure as a reason not to start a business, or not to do so) on the value of the endogenous variable (e.g., the probability of becoming a nascent entrepreneur), because the size of this effects depends on both the value of the exogenous variable under consideration and on the values of all other variables in the model (see Long and Freese, 2001, 87ff.).

A way to ease interpretation of the estimation results is to compute the estimated values of the endogenous variable (here: the probability of being a nascent necessity entrepreneur) for a person with certain characteristics and attitudes, and to show how a change in the value of one exogenous variable at a time changes the estimated probability.

For expository purposes, we start by looking at Person A, a 40 years old man with three fields of experience and one professional degree who does not consider fear of failure a reason not to start his own business, who has at least one self-employed person in his family, and who is not unemployed. According to the results reported in table II the estimated

probability for being a nascent entrepreneur for person A is 1.6 percent.² Now consider person B who is identical to Person A but has four instead of three fields of experience – the probability is 1.7 percent – only marginally higher than for person A. To demonstrate the importance of risk aversion let us now look at person C who is identical to person B but who does consider fear of failure a reason not to start his own business. For this person the estimated probability of being a nascent entrepreneur drops to 0.6 percent. Next, let us look at person D who is identical to person C but who is unemployed – the estimated probability goes up to 7.7 percent. Unemployment matters a lot. Last, consider person E who is identical to person D, but who is 30 years old instead of 40 years – the probability of being a nascent necessity entrepreneur decreases marginally to 7 percent.

To repeat, the size of any effect of a change in the value of one independent variable on the estimated probability of being a nascent entrepreneur depends on both the value of the exogenous variable under consideration and on the values of all other variables in the model. Therefore, the illustrative simulations given above can not be more than exercises to check whether the variables which are statistically significant in the reduced form logit model for nascent necessity entrepreneurs do matter economically, too.

Let us now turn to the results for the probability of being a *nascent opportunity entrepreneur vs. a paid employee or unemployed*. The estimated coefficients for the variables measuring sex, the number of fields of experience, the number of professional degrees, the degree of risk aversion, the presence or not of a role model in the family, and unemployment all have the expected signs, and they are statistically different from zero at an error level of less than one percent. Note that age is not related to nascent opportunity entrepreneurship; accordingly, the positive and negative influences of a higher age on the probability of being involved in starting a new venture (discussed above) tend to cancel out.

To illustrate the effect of changes in the exogenous variables on the probability of being a nascent opportunity entrepreneur we will again consider some fictive persons. We start by looking at Person F, a 40 years old man with three fields of experience and one

² All simulations were done in Stata 8.2 using the SETX and RELOGITQ programs that come with RELOGIT; see footnote 1.

professional degree who does not consider fear of failure a reason not to start his own business, who has at least one self-employed person in his family, and who is not unemployed. According to the results reported in table II the estimated probability for being a nascent opportunity entrepreneur for person F is 6.8 percent. If this person is a women (person G) instead, the estimated probability goes down to 4.0 percent. Gender matters. Now consider person H who is identical to Person F but who has four fields of professional experience; his estimated probability is 7.1 percent. For person J who is identical to person H but who holds two professional degrees instead of one, the probability is 8.7 percent. This illustrates how the width of experience matters for being a nascent opportunity entrepreneur. To demonstrate the importance of risk aversion let us now look at person K who is identical to person J but who does consider fear of failure a reason not to start his own business. For this person the estimated probability of being a nascent entrepreneur drops to 1.9 percent. Next, let us look at person L who is identical to person K but has no self-employed in his family – the estimated probability goes down to 1 percent. Role models matter, too. Last, consider person M who is identical to person K, but who is unemployed – the estimated probability rises to 3.4 percent.

Like in the case of nascent necessity entrepreneurs discussed earlier in this section the simulations illustrate how the variables which are statistically significant in the reduced form logit model for nascent opportunity entrepreneurs do matter economically.

A comparison of the results from the empirical models for nascent necessity and nascent opportunity entrepreneurs shows that the patterns differ regarding the influence of some characteristics – sex, age, the number of professional degrees, and the presence or not of a role model in the family - while they are identical regarding the direction (i.e., the sign of the estimated coefficient), and in line with our theoretical priors, with respect to other characteristics and attitudes – both types of nascent entrepreneurship are fostered by the width of experience and by unemployment, and hindered by risk aversion.

What about the strength of the effects of the three variables with a statistically significant coefficient of identical sign in both columns of table II? Unfortunately, the answer is less obvious than it may seem, because estimated coefficients from logit (or probit) models cannot be compared easily. Details aside, these coefficients are scaled by the unobserved heterogeneity in the sample. Thus, apparent differences in coefficients between the models estimated for nascent necessity and nascent opportunity entrepreneurs can reflect “real” differences or differences in unobserved heterogeneity (see Allison 1999, and Hoetger 2004). Again, simulation experiments can be helpful. Consider as a benchmark a person who is a 40 years old man with three fields of experience and one professional degree who does not consider fear of failure a reason not to start his own business, who has at least one self-employed person in his family, and who is not unemployed. According to the results reported in table II the estimated probability to be a nascent necessity (opportunity) entrepreneur is 1.6 (6.8) percent. If this person has one more field of experience the estimated probability increases to 1.7 (7.1) percent – marginally only in both cases, so the estimated coefficients do not reveal any difference in behavior. If he considers fear of failure a reason not to start an own business, the estimated probability drops to 0.5 percent for nascent necessity entrepreneurs and to 1.4 percent for nascent opportunity entrepreneurs. The drop is much larger in relative terms for the opportunity than for the necessity nascent – in other words, risk aversion does hinder opportunity entrepreneurship more than necessity entrepreneurship. If he is unemployed, the estimated probability for necessity entrepreneurship goes up to 20 percent (i.e. by a factor 12.5), while it goes up by a factor 3 to 20.6 percent for opportunity entrepreneurs – unemployment matters much more for necessity than for opportunity entrepreneurship. Summing up, based on the results reported in table II we can argue that nascent necessity and nascent opportunity entrepreneurs differ with respect to their behavior in some dimensions relevant for entrepreneurship.

5. Discussion

The aim of this paper is to investigate how nascent necessity entrepreneurs and nascent opportunity entrepreneurs differ from each other, and to discuss whether differences in the average performance of new ventures founded by necessity and opportunity nascents are to be expected.

From a descriptive comparison of both groups of nascents it can be seen that, on average, nascent necessity entrepreneurs are more often female, they are (slightly) older, they consider fear of failure more often a reason not to start an own business (but try to set up their own business nevertheless, because by definition they lack a better alternative), they have less often a role model in their family, and they are more often unemployed. However, necessity and opportunity nascents do not differ with regard to their average number of fields of experience or professional degrees. If, as stated by Lazear (2002), entrepreneurs must have sufficient knowledge in a variety of areas to put together the many ingredients needed for survival and success in a business, members from both groups have on average the same prerequisites. The same holds for another aspect that is often said to be related to success in self-employment (and that is not covered in table I because it makes no sense for the members of the control group who are either paid employees or unemployed), namely experience as an employee in the field where the new venture is started. 56 percent of all nascent necessity entrepreneurs and 53 percent of all nascent opportunity entrepreneurs stated that they worked in the industry before where they are about to become self-employed. On average, therefore, members of both groups of nascents have the same degree of industry specific experience.

Based on this comparison of characteristics and attitudes one can speculate that the expected performance of new ventures started by necessity entrepreneurs might be worse compared to the expected performance of new firms built by opportunity entrepreneurs because members of the former group more often lack the heritage from self-employed

parents who offer their offspring informal induction in business methods, transfer business experience and provide access to capital and equipment, business networks, consultancy, reputation, and pro-business attitudes in general. Furthermore, the larger share of unemployed among the nascent necessity entrepreneurs is expected to lead more often to serious financial constraints that might hinder growth or even survival. Whether this is the case or not, however, cannot be decided on the basis of cross section data from the REM project (used here) or the GEM project (mentioned in the introduction). It takes comprehensive sets of longitudinal data for necessity and opportunity entrepreneurs, covering several years of post-entry performance of the new ventures, to investigate this important topic. As long as these data, and econometric studies based thereon, are not available, sound conclusions about the sense or non-sense of policies fostering self-employment out of unemployment, or any other type of necessity entrepreneurship, are not possible.

References

- Acs, Zoltan J. et al. (2005). Global Entrepreneurship Monitor. 2004 Executive Report. Babson College and London Business School.
- Allison, Paul D. (1999). Comparing Logit and Probit Coefficients Across Groups. *Sociological Methods & Research* 28, 186-208.
- Deutscher Industrie- und Handelskammertag (2005). Gründungsförderung an der Schwelle zu Hartz IV. Berlin.
- Evans, David S. and Boyan Jovanovic (1989). An Estimated Model of Entrepreneurial Choice under Liquidity Constraints. *Journal of Political Economy* 97, 808-827.
- Evans, David S. and Linda S. Leighton (1989). Some Empirical Aspects of Entrepreneurship. *American Economic Review* 79, 519-535.
- Hoetker, Glenn (2004). Confounded Coefficients: Extending recent Advances in the accurate Comparison of Logit and Probit Coefficients across Groups. Mimeo, University of Illinois at Urbana-Champaign.
- Kihlstrom, Richard E. and Jean-Jacques Laffont (1979). A General Equilibrium Entrepreneurial Theory of Firm Formation Based on Risk Aversion. *Journal of Political Economy* 87, 719-748.
- King, Gary and Langche Zeng (2001a). Logistic Regression in Rare Events Data, *Political Analysis* 9 (2), 137-163.
- King, Gary and Langche Zeng (2001b). Explaining Rare Events in International Relations, *International Organization* 55 (3), 693-715.
- Lazear, Edward P. (2002). Entrepreneurship. National Bureau of Economic Research Working Paper 9109, August.
- Lazear, Edward P. (2004). Balanced Skills and Entrepreneurship. *American Economic Review – Papers and Proceedings* 94 (2), 208-211.

- Long, J. Scott and Jeremy Freese (2001). *Regression Models for Categorical Dependent Variables using Stata*. College Station, Texas: Stata Press.
- Lückgen, Ingo and Dirk Oberschachtsiek (2004). *Regionaler Entrepreneurship Monitor (REM II 2003/2004). Zur Dynamik von Gründungsaktivitäten in Deutschland: Ausmaß und Ursachen*. Universität zu Köln, Universität Lüneburg.
- Minitti, Maria, Pia Arenius and Nan Langowitz (2005). *Global Entrepreneurship Monitor. 2004 Report on Women and Entrepreneurship*. Babson College and London Business School.
- Parker, Simon (2004). *The Economics of Self-Employment and Entrepreneurship*. Cambridge etc.: Cambridge University Press.
- Reynolds, Paul D. (2000). National panel study of U.S. business startups: Background and methodology. In Jerome A. Katz (Ed.), *Databases for the study of entrepreneurship (Advances in entrepreneurship, firm emergence, and growth, Volume 4)*. Amsterdam etc.: JAI, 153-227.
- Reynolds, Paul D. et al. (2005). *Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998-2003*. *Small Business Economics* 24, 205-231.
- StataCorp (2003). *Stata Statistical Software: Release 8.0*. College Station, TX: Stata Corporation.
- Sternberg, Rolf and Ingo Lückgen (2005). *Global Entrepreneurship Monitor. Unternehmensgründungen im weltweiten Vergleich. Länderbericht Deutschland 2004*. Universität zu Köln – Wirtschafts- und Sozialgeographisches Institut.
- Wagner, Joachim (2003a). Testing Lazear's Jack-of-All-Trades View of Entrepreneurship with German Micro Data. *Applied Economics Letters* 10, 687-89.
- Wagner, Joachim (2003b). Are Nascent Entrepreneurs Jacks-of-All-Trades? A Test of Lazear's Theory of Entrepreneurship with German Data. Institute for the Study of Labor IZA Discussion Paper No. 911, October.

Wagner, Joachim (2004a). Nascent Entrepreneurs. Institute for the Study of Labor IZA Discussion Paper No. 1293, September.

Wagner, Joachim (2004b). What a Difference a Y Makes: Female and Male Nascent Entrepreneurs in Germany. Institute for the Study of Labor IZA Discussion Paper No. 1134, May.

Table I: A comparison of nascent necessity entrepreneurs, nascent opportunity entrepreneurs, and paid employees/unemployed

	Sex (dummy; 1 = male)	Age (years)	Number of fields of experience	Number of professional degrees	Fear of failure a reason not to start an own business (dummy; 1 = yes)	At least one self- employed in the family (dummy; 1 = yes)	Unemployed (dummy; 1 = yes)
	Mean (Std. Dev.)						
Nascent necessity entrepreneurs (N = 104)	0.55 (0.50)	40.0 (9.5)	4.50 (5.70)	1.08 (0.57)	0.30 (0.46)	0.48 (0.50)	0.56 (0.50)
Nascent opportunity entrepreneurs (N = 217)	0.65 (0.48)	37.5 (10.5)	3.89 (3.03)	1.10 (0.64)	0.17 (0.38)	0.62 (0.49)	0.22 (0.42)
Paid employees and unemployed (N = 6995)	0.48 (0.50)	41.0 (10.4)	3.26 (2.61)	1.03 (0.53)	0.53 (0.50)	0.44 (0.50)	0.09 (0.29)
	Prob-values for test of H ₀ : Difference in means = 0						
Nascent necessity vs. opportunity entrepreneurs	0.09	0.04	0.31	0.78	0.01	0.02	0.00
Nascent necessity entrepreneurs vs. paid employees and unemployed	0.18	0.29	0.03	0.42	0.00	0.38	0.00
Nascent opportunity entrepreneurs vs. paid employees and unemployed	0.00	0.00	0.00	0.14	0.00	0.00	0.00

Note: A prob-value of less than 0.05 means that the null-hypothesis of equal means for both groups can be rejected at an error level of less than 5 percent.

Table II: Rare events logit estimates for being a nascent necessity or opportunity entrepreneur

	Necessity nascent entrepreneur	Opportunity nascent entrepreneur
Sex (dummy variable; 1 = male)	0.176 0.308	0.560 0.000
Age (years)	0.195 0.047	-0.029 0.638
Age squared	-0.003 0.029	0.44e-4 0.950
Number of fields of experience	0.060 0.009	0.047 0.000
Number of professional Degrees	0.246 0.222	0.220 0.006
Fear of failure a reason not to start an own business (dummy variable; 1 = yes)	-1.132 0.000	-1.617 0.000
At least one self-employed in the family (dummy variable; 1 = yes)	0.154 0.525	0.657 0.000
Unemployed (dummy variable; 1 = yes)	2.717 0.000	1.272 0.000
Constant	-8.453 0.000	-2.956 0.022
Number of cases	7099	7211

Note: Prob-values are reported below the estimated coefficients. See text for details.