I Can't Get No Satisfaction – Necessity Entrepreneurship and Procedural Utility

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ABSTRACT AND KEYWORDS	
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Abstract

We study a unique sample of 1,547 nascent entrepreneurs in Germany and analyze which factors are associated with their start-up satisfaction. Our results identify a group of nascent entrepreneurs that "cannot get satisfaction" with their start-up because they did not choose to become entrepreneurs out of free will, but out of long-term unemployment or a lack of better employment alternatives. Overall, financial success is the most important determinant of start-up satisfaction. Yet, achievement of independence and creativity is also highly important, a finding that emphasizes the economic relevance of procedural utility and non-financial incentives.

Keywords: Entrepreneurship; Satisfaction; Procedural Utility; Unemployment; Necessity Entrepreneurship

JEL-Codes: J24, J17, L26

INTRODUCTION

This study analyzes which factors are associated with the start-up satisfaction of nascent entrepreneurs. The purpose of this exercise is two-fold.

First, entrepreneurship is a vital element of well functioning economies. Entrepreneurs introduce innovations into the economic system and may contribute towards economic development (Acs et al. 2004, Audretsch and Keilbach 2004, Schumpeter 1934, Van Stel et al. 2005). In addition, market entry and entrepreneurial activity is vital in adjusting markets towards competitive levels (Kirzner 1972), and even purely imitative entrepreneurial activity can have growth-enhancing effects by stimulating efficiency and promoting the diffusion of technologies (Schmitz 1989). There is currently a sense of increasing importance of entrepreneurship in the research literature (Audretsch 2007), and stimulating entrepreneurial activity is on the agenda of policy makers (Audretsch and Thurik 2000, Audretsch et al. 2002). Hence, understanding the motives of people to engage in entrepreneurial activity is important.

Second, an understanding of the nature of individual utility that goes beyond axiomatic beliefs should be of intrinsic importance to economists in general, at least to those who attempt to describe the real world and to inform decision-makers. Studies analyzing happiness or satisfaction can be valuable towards this end, since reported satisfaction levels are an approximation of individual utility and allow us to gain insights into correlates and causes of utility (Frey and Stutzer 2002).

Previous studies have consistently found higher levels of job satisfaction among self-employed than among employed individuals (Benz and Frey 2008, Blanchflower and Oswald 1998, Blanchflower 2000, Blanchflower et al. 2001, Parasuraman and Simmers 2001). Yet this seems surprising given the lower average incomes of entrepreneurs compared to employees (Hamilton 2000), low returns on financial investments in entrepreneurial firms (Moskovitz and Vissing-Jørgensen 2002), high failure risks of new businesses (Dunne et al. 1988), and comparatively longer working hours of the self-employed (Parasuraman and Simmers 2001). Hence, the high input and low instrumental output of entrepreneurial behavior appears to be inconsistent with the traditional micro-economic views of rational decision-making and purely monetary preferences of individuals.

In fact, numerous studies have shown that start-up decisions and entrepreneurial behavior are often influenced by biased perceptions and overconfidence (Busenitz and Barney

1997, Camerer and Lovallo 1999, Cooper et al. 1988, Koellinger and Minniti 2006, Koellinger et al. 2007). If such biases influence start-up behavior, the preferences of entrepreneurs cannot be readily inferred from their behavior, contrary to the standard revealed-preference approach in many economic studies (Frey and Stutzer 2002). Instead, in order to learn about the motives influencing entrepreneurial behavior, a more promising approach would be to ask individuals directly about their motives and the satisfaction they experience.

Using this direct approach to analyze reported job satisfaction, Benz and Frey (2008) show that self-employment provides *procedural utility* (Frey et al. 2004): The self-employed value not only outcomes, but also the conditions and processes leading to these outcomes. Procedural utility refers to the non-instrumental pleasures and displeasures of process, in contrast to the more standard view of economic utility, which is concerned only with instrumental outcomes such as monetary gains or market transactions. In the case of self-employment, factors contributing towards this procedural utility beyond monetary income include autonomy, flexibility, and the actual work itself (Benz and Frey 2008, Parasuraman and Simmers 2001).

Previous studies examining the job satisfaction of entrepreneurs have focused exclusively on the difference between the self-employed and the employed. To the best of our knowledge, our study is the first to focus on nascent entrepreneurs[1] and the process that leads them to start a business. This allows us to detect different levels of satisfaction among nascent entrepreneurs, instead of differences between entrepreneurs and employees.

Our regressions on the satisfaction of nascent entrepreneurs with their start-up include a comprehensive list of independent variables. Most importantly, we find that nascent entrepreneurs who started their business after a previous period of unemployment and due to a lack of better work alternatives (necessity entrepreneurs) are significantly less satisfied with their start-up. This is a significant result for two reasons. First, it suggests that the well-known utility losses due to unemployment (Blanchflower and Oswald 2004, Di Tella et al. 2001) exceed the actual time period of unemployment if individuals enter self-employment afterwards. Second, the result suggests a new facet of procedural utility: In the case of

[1] Nascent entrepreneurship refers to serious, early stage start-up activities that are intended to culminate in a viable business (Aldrich 1999), whereas self-employment in many official statistics refers to individuals who earn more than 50% of their income by running their own business. Many nascent entrepreneurs may not (yet) fulfill this definition of self-employment, which actually includes an indirect measure of start-up success. In addition, the nascent entrepreneurs in our sample went through their start-up decision and the conditions leading to it more recently than typical cohorts of self-employed. Nevertheless, in most parts of this article, we use the terms entrepreneurship and self-employment interchangeably.

entrepreneurship, individuals do not only care about the result of their work and the process of work itself, but they also care about the process leading to their decision to start a business. If the decision was made as a result of an exercise of free will, entrepreneurs are significantly more satisfied with their start-up. On the other hand, if people are pushed into self-employment out of unemployment or a lack of better alternatives, they are significantly less satisfied. We can draw these conclusions because we control for the financial success of the new venture and numerous other alternative explanations. Thus, the circumstances leading to the start-up decision influence the satisfaction of nascent entrepreneurs in addition to the process from the start-up decision onwards.

Our results also emphasize the importance of procedural utility in the sense of Benz and Frey (2008). Nascent entrepreneurs in our sample show significantly higher levels of start-up satisfaction if they have achieved a high level of independence and creativity. Thus, an important reason for individuals to start their own business seems to be the possibility to achieve self-realization and self-determination. For these individuals, the "way" seems to be the "goal"; these entrepreneurs extract utility out of their work, over and above the utility they achieve out of the monetary rewards of their venture.

Does this mean entrepreneurs do not care about money? Our results clearly show that this is not the case. In fact, financial success is the single most important variable in our regressions associated with start-up satisfaction. Thus, monetary gains remain a major source of reported satisfaction levels even though individuals also seem to care about other aspects than money when they start a business.

We proceed by describing our dataset in section 2. Our empirical analysis is reported in section 3. Section 4 discusses our findings and puts them into perspective.

DATA

Sample

To analyze the satisfaction levels of nascent entrepreneurs with their start-up, we conducted an online survey in Germany in April 2008. Our sample was drawn from the 46,513 subscribers of the newsletter "news2use" of our cooperation partner "gruendungszuschuss.de" (as of April 1st, 2008). The newsletter is free and is targeted to early-stage entrepreneurs or individuals planning to become an entrepreneur in the near future. It contains practical and

useful information about how to start and manage an early-stage venture.[2] We were able to contact 24,875 individuals by a personalized e-mail and invite them to participate in our survey.[3] To make sure that only those individuals who received this e-mail participated in the survey, each e-mail contained an individual token to take part in our survey. Each token could be used only once. The questionnaire was pre-tested several times for clarity and structure among a number of selected entrepreneurs and students. On average, respondents needed 12 minutes to fill out the final questionnaire. An individual e-mail reminder was sent out on April 16, 2008 to those who had not yet taken part in the survey. To increase the response rate, we highlighted the importance of the research question for policy-makers and society in general. Furthermore, as an individual incentive, the participants were invited to participate in a lottery of 10 Amazon vouchers with a value of €30 each.

Altogether, 2,304 individuals took part in the survey, which leaves us with a response rate of 9.26%. We excluded individuals that had not yet started their venture (153 individuals), who had already abandoned their venture (157 individuals), who considered their venture to be only part-time[4] (183 individuals), and observations with missing values (264 individuals), leaving us with a final sample size of 1,547 individuals.

Measures

To learn about the entrepreneurs' satisfaction with their start-ups, we asked respondents about their satisfaction with regard to their venture, using a scale from "not successful at all" (1) to "very successful" (5). From this statement, we derived the ordinal variable *satisfaction with start-up*, which is the dependent variable in the empirical analyses that follows. Our measure is closely related to the well-known job satisfaction variables in the British Household Panel Survey, the German Socio-Economic Panel Survey, the Swiss Household Panel Survey, and the US General Social Survey (Benz and Frey 2008, Blanchflower and Oswald 1999, Clark 2001). The main difference of our measure is the focus on satisfaction with the start-up instead of job satisfaction in general.

To measure the entrepreneur's level of income, the participants of the survey were asked to evaluate the statement "I have achieved a high level of income" on a 5-point Likert

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2 For more information about the newsletter, see http://www.gruendungszuschuss.de/service-menue/news/newsletter-archiv.html (retrieved on June 17, 2008). For a similar survey conducted in 2006, also based on the newsletter, see Sandner et al. (2008).

3 The large reduction is due to the fact that a large number of e-mail addresses did not work and that a number of newsletter recipients were registered with two or more e-mail addresses.

4 Part-time is defined as working fewer than 15 hours per week for the start-up.

scale. Although this is a subjective measure that depends on individuals' personal aspiration levels, it is useful to study start-up satisfaction since people seem to derive utility mainly from relative rather than absolute income levels, in other words derived utility is a function of their personal aspiration level (Frey and Stutzer 2002). Hence, a statement about whether individual aspiration levels have been reached is likely to be a good proxy for monetary gains from self-employment. In addition, in a survey like ours, many respondents would not report their actual income freely and accurately, leading to many missing values and biases. Following the same logic, and in order to get a more comprehensive measure of monetary benefits of entrepreneurship, we asked respondents two additional questions related to their earnings: We asked whether earnings are sufficient to cover living expenses[5] and whether earnings from self-employment are higher or lower than income from the previous job.[6] In the empirical analyses that follow, we used the Likert scale-based operationalization, because it allowed us to compare in a direct way the effect of the variable *level of income* on the entrepreneur's satisfaction with those variables measuring the non-monetary aspects. The results change little when using this or other methods of measurement.

The non-monetary constituents of entrepreneurs' satisfaction were measured in a similar way. To record the level of creativity achieved, the participants of the survey were asked to evaluate the statement "I have achieved a high level of creativity" on a 5-point Likert scale, which was then used to construct the ordinal variable *level of creativity*. In a similar way, the participants were asked to state their achieved level of independence, their achieved level of flexibility in working hours, and their achieved level of security.

To find out how the entrepreneurs came to start their venture, we asked them about their reasons for starting their venture: to take advantage of a new business opportunity (variable *opportunity entrepreneur*), no better choices for work (variable *necessity entrepreneur*), or a combination of both (which is used as a reference category).[7] In addition, we asked the participants whether they had been unemployed before starting their venture, and if so, for how long.[8]

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5 The response categories were "yes, the earnings are clearly high enough", "yes, the earnings are just high enough", "no, but the earnings are almost high enough", and "no, the earnings are by far not high enough".

6 The response categories were "more than 40% higher", "more than 20% higher", "about the same", "more than 20% lower", and "more than 40% lower".

7 The question is identical to the question used by the Global Entrepreneurship Monitor (GEM), which introduced the terms necessity and opportunity entrepreneurship (see Reynolds et al. 2005; for an alternative measurement, see Block and Sandner, 2008).

8 The response categories were "0 months", "1-6 months", "7-12 months", and ">12 months".

To control for socio-demographic characteristics, we asked the participants to state their gender, age, nationality, marital status, industry experience, and highest degree of education attained. To control for the entrepreneur's state of wealth, we asked the participants how long they could live off their wealth without any additional income, and we created a dummy variable indicating whether the participant could live more than half a year just from his or her wealth. Similar to the questions on the achieved level of income, this subjective variable takes advantage of the known relevance of deviation from personal aspiration levels for satisfaction and happiness. To illustrate, two people might have an identical level of wealth of €20,000. Depending on their living standard and personal aspirations, one of them might state to be able to live more than half a year from this wealth, while the other one might state the opposite. Thus, the same level of wealth can lead to different levels of satisfaction. Since we are interested in controlling for the experienced level of satisfaction due to wealth, our measure is more appropriate than the absolute level of wealth because it takes the aspiration levels of the respondents into account. To control for personality characteristics, we included a 10-item scale developed by Gosling et al. (2003), which measures the big-5 personality domains: extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience. Risk tolerance of respondents was measured using a scale developed by Dohmen et al. (2005) and used since 2004 in the German Socio-Economic Panel Study (GSOEP). In addition, relevant information about characteristics of the start-ups were recorded, including the age of the venture, the amount of initial investment in the start-up, and the industry in which the start-up is active. Finally, to control for differences between respondents situated in the former East Germany and West Germany, we asked the entrepreneur to provide the first digit of his or her zip-code, which we then used to construct the dummy variable *East Germany*.

Table A1 in the Appendix describes the variables in more detail.

EMPIRICAL ANALYSIS

Descriptive Statistics

Table 1a describes our sample. Most participants fall into the age category of 35-44 years (41%), followed by the categories 45-54 years (29%) and 25-34 years (20%). The participants are more likely to be male than female (64% vs. 36%), and they are more likely to be situated in former West Germany than in the former East Germany (86% vs. 14%). Most participants

are well-educated. More than 75% of participants attended school for 12 years or more. In terms of their motivation for starting their venture, opportunity entrepreneurs are more common than necessity entrepreneurs (45% vs. 17%), with 38% belonging to both categories. Furthermore, 62% of entrepreneurs state that they had not been unemployed in the period before starting their venture; only 20% of the participants had been unemployed for a period longer than half a year. A majority of the entrepreneurs (67%) had gained experience for their venture in a previous employment job.

Regarding start-up characteristics, our sample can be described as follows. Most start-ups are rather young: 29% of businesses have existed for less than a year, 27% fall into the category of 1-2 years, and 17% in the category of 2-3 years. Only 26% of businesses have existed for more than 3 years. Most start-ups are small: Only 13% of the businesses required an initial investment of greater than €25,000. The respondent group includes mainly service industries, which can be explained by the target group of the newsletter used to recruit our sample (see above). Thus, 25% of the participants stated that their business falls into the category of "legal services, training, and consulting", 17% of the participants stated that their business falls into the category of "culture, event management, and marketing", and 15% of the participants stated that they are active in the IT/telecommunications sector. Manufacturing and small trade together account for only 4% of the businesses, with retailing accounting for only 6% of the businesses.

Insert Table 1a about here

Univariate Analysis

Table 1b gives some characteristics of the distribution of our dependent variable *satisfaction with start-up,* as well as our main variables of interest such as *level of income*, *level of creativity*, and *level of independence*. Most entrepreneurs are happy with their start-up. With regard to business satisfaction, 73% of the participants rate their business as "successful" or "very successful". The picture becomes more diverse when looking at the monetary and non-monetary aspects of the entrepreneurs' overall satisfaction. Only 23% of the participants state that they have achieved a high level of income, whereas 74% of the participants state that they have achieved a high level of creativity. Most (60%) of the participants claim to have

achieved a high level of independence, whereas only 11% state that they have achieved a high level of security.

Insert Table 1b about here

How does the variation in these variables and other independent variables translate into differences regarding overall satisfaction with the start-up? Table 2a and Table 2b display the results of univariate analyses. It can be seen that entrepreneurs' satisfaction with their start-up increases both with a higher level of achieved income and with a higher level of non-monetary parameters such as a higher level of independence. The mean of the variable *satisfaction with start-up,* whose responses ranged on a scale from 1 to 5, is 3.22 (median: 3) for those who strongly disagree that they have achieved a high level of income, whereas the mean for those who strongly agree with this statement is 4.73 (median: 5). Differences can also be seen for the non-monetary aspects, although these are not as large as those with the variable *level of income*. For example, the difference in means of satisfaction with start-up between those who strongly disagree and those who strongly agree to have achieved a high level of flexibility in working time is only 0.3. Regarding the motivation for starting the venture, strong differences can be observed. Necessity entrepreneurs report a mean satisfaction of 3.58, whereas opportunity entrepreneurs report a mean satisfaction of 4.07. A long period of unemployment is negatively related to start-up satisfaction. Those entrepreneurs who were unemployed for a period longer than 12 months have a mean satisfaction of only 3.38.

To test whether these differences are statistically significant, we use both parametric and non-parametric tests. The Kruskal-Wallis test (Kruskal and Wallis 1952) analyzes whether in a set of independent samples, at least two of the samples represent populations with a different median (Sheskin 2007, p. 981). If the null hypothesis can be rejected, at least two of the samples are from a population with a different median. In our case, all measures discussed above yielded a p-value <1%. Hence, the median business satisfaction differs with the levels of achieved income, independence, creativity and length of unemployment. To analyze whether the mean satisfaction differs between the groups, we conducted a between-groups analysis of variance (Sheskin 2007, p. 868). Again, with all measures of monetary and non-monetary variables, the null hypothesis can be rejected with a p-value <1%, i.e. at least

two of the respective groups are from populations with significantly different means.

Insert Table 2a and 2b about here

Multivariate Analysis

Table 3 shows the results of our multivariate analysis. We estimated four differently-specified, ordered logit models in which the dependent variable was *satisfaction with start-up* and the independent variables were as described in Table A1 in the Appendix. All models were statistically significant and yielded Pseudo-R^2-values of 0.16 and greater. Table A2 in the Appendix gives a correlation matrix of the variables used in the multivariate analysis.

Model I includes only the variable *level of income*. The model is highly significant and yields a Pseudo-R^2-value of 0.16. The coefficient of the variable *level of income* is 1.26 (with $p < 0.01$).

Model II includes the variable *level of income* and all other independent variables, except the variables measuring the non-monetary constituents of business satisfaction and the variables measuring the way the entrepreneur came to start his or her venture. Compared to Model I, the coefficient and significance of the variable *level of income* are similar. The Pseudo-R^2-value, however, is higher: 0.21 compared to 0.16 in Model I.

Model III contains the variable *level of income* and the variables measuring the non-monetary constituents of business satisfaction, as well as all other control variables except the variables measuring the way the entrepreneur came to start his or her venture. The Pseudo-R^2-value increases slightly from 0.21 to 0.22 compared to Model II. The effect of the variable *level of income* is slightly different from that of Model II. The coefficient of the variable is 1.07 in Model III and 1.26 in Model II, but it remains highly significant in both models ($p < 0.01$). Hence, it seems that some part of the *level of income* effect can be attributed to the non-monetary aspects of business satisfaction. The correlation matrix in Table A2 shows that the variable *level of income* is correlated with the variables *level of independence* ($r = 0.26$) and *level of security* ($r = 0.55$). Regarding the variables measuring the non-monetary constituents of business satisfaction, *level of creativity* ($\beta = 0.17$ with $p < 0.05$), *level of independence* ($\beta = 0.31$ with $p < 0.01$), and *level of security* ($\beta = 0.34$ with $p < 0.01$) correlate strongly with start-up satisfaction. The variable *level of flexibility in working time* does not have a statistically

significant coefficient ($\beta = -0.03$ with $p > 0.1$).

Finally, model IV also includes variables that provide information about the circumstances leading to the start-up decision, namely previous unemployment status and self-reported motivation for starting the business (i.e., necessity versus opportunity entrepreneurs). Furthermore, to control for potential differences between necessity and opportunity entrepreneurs in terms of working effort, an ordinal variable referring to the number of weekly working hours is included. The Pseudo-R^2-value increases slightly from 0.22 to 0.24 compared to Model III. The effects of the variables measuring the level of monetary and non-monetary constituents of business satisfaction remain almost unchanged and none of the variables lose their significance or become significant compared to Model III. The effect of the newly included variable *opportunity entrepreneur* is positive ($\beta = 0.31$ with $p < 0.05$), whereas the effect of the variable *necessity entrepreneur* is negative ($\beta = -0.57$ with $p < 0.01$). In other words, controlling for monetary and non-monetary aspects of business satisfaction and many other control variables, opportunity entrepreneurs are more satisfied with their business than other entrepreneurs, whereas necessity entrepreneurs are less satisfied with their business than other entrepreneurs. The coefficients of the unemployment dummies point in the same direction. Those entrepreneurs who were unemployed for more than a year before starting their venture are less satisfied with their venture than those entrepreneurs who were not unemployed previous to their start-up activity ($\beta = -0.70$ with $p < 0.01$). Hence, the way the entrepreneur came to start his or her venture seems to influence the satisfaction with his or her start-up, even after the decision has already been made.[9] The number of hours worked for the start-up positively correlates with start-up satisfaction ($\beta = 0.08$ with $p < 0.01$), providing additional evidence for procedural utility of entrepreneurs.

Since both the monetary and the non-monetary constituents are measured on the same scale, the effects of these variables can be compared directly. A test on the equality of coefficients shows that the effect of the variable *level of income* differs from the effects of the variables that measure the non-monetary constituents of business satisfaction. Given the directions of the differences, we can conclude that the monetary component matters more than any of the non-monetary components.

A number of control variables are significantly associated with entrepreneurs' start-up satisfaction. Entrepreneurs younger than 25 and better-educated entrepreneurs are more happy

[9] Note that the regression controls for personality characteristics of the respondents. Hence, the lower satisfaction levels of necessity entrepreneurs and entrepreneurs coming out of long-term unemployment are unlikely to be the result of personality differences.

with their start-up than other entrepreneurs, whereas emotionally unstable entrepreneurs are less satisfied. An F-test on joint significance shows that industry effects also matter ($p < 0.05$).[10] Contrary to previous studies, we find that married entrepreneurs are not more satisfied with their start-up than non-married entrepreneurs.[11] This might be explained by the fact that we measure start-up satisfaction and not the general well-being measured in other studies (e.g., Gove et al., 1983).

Because our study uses cross-sectional data, we cannot exclude the possibility that happiness or satisfaction cause entrepreneurial success and not the other way around. However, this seems unlikely to be the case. First, the start-up satisfaction at the time of the survey is unlikely to have an influence on the motivation to start the venture in the first place. Second, related research on the relationship between unhappiness and unemployment indicates that the causality runs mainly from unemployment to unhappiness, not the other way around (Linn et al. 1985, Marks and Fleming 1999, Murphy and Athanasou 1999, Winkelmann and Winkelmann 1998). Third, we control for working time invested in the start-up and thus can exclude the possibility that the lower satisfaction level of necessity entrepreneurs and those formerly unemployed for an extended period of time is the result of lower levels of effort. Finally, we also control for the financial achievement of nascent entrepreneurs and hence for the potentially lower satisfaction levels of underachievers.

Insert Table 3 about here

CONCLUSION AND IMPLICATIONS

What can we learn from these empirical results? First, in accord with basic economic reasoning, we find that entrepreneurs do care about money. The strong association between financial success and start-up satisfaction suggests that financial motives are a major incentive for individuals to engage in entrepreneurial activity. Second, we find additional evidence that entrepreneurs also derive utility from things other than financial success. In particular, the achievement of independence and creativity is highly correlated with start-up satisfaction.

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[10] Entrepreneurs in the retail sector were the least satisfied; entrepreneurs in the health sector reported the highest scores of business satisfaction.

[11] The inclusion of the variable *children* (see table A1 in the Appendix) did not change the results. The effect of the variable was insignificant.

This suggests that entrepreneurship can be an attractive career opportunity for individuals who strongly value independence and creativity. Such individuals might extract procedural utility out of the entrepreneurial work itself, over and above the financial returns on their activities. Third, we find evidence that the circumstances leading to a decision influence the utility that an individual extracts from the results of that decision. In our case, necessity entrepreneurs and individuals starting a business out of long-term unemployment are significantly less satisfied with their start-up.

We can think of two possible explanations for this phenomenon. The first one is related to aspirations. Some individuals may simply prefer to be in a secure wage contract rather than being self-employed. They may not appreciate certain aspects of being an entrepreneur, such as the additional work load, uncertainty, responsibility, risk, or perceived lower social status. The lower start-up satisfaction ratings of necessity entrepreneurs may be interpreted as the fact that they experience lower utility than those who preferred to become self-employed, a difference that reflects individual preferences. The second possible explanation concerns the decision process itself. Entrepreneurs who started a business intentionally and out of free will may extract utility out of having control over their own actions, which seems to be a basic human psychological need (Ryan and Deci 2000). On the other hand, the absence of the opportunity to exercise free will and to make a conscious choice may cause disutility. In both possible explanations, it is the lack of viable options that explains the loss of experienced utility and satisfaction. To the best of our knowledge, evidence for this particular aspect of procedural utility has been lacking until now in the economics literature.

Whether necessity entrepreneurs are more or less happy than the unemployed remains an open question. Nevertheless, at the individual level, our results indicate that forcing people into situations when they cannot choose among alternatives is likely to result in significant utility losses, independent of other factors. A policy aiming to increase entrepreneurial activity without forcing the unemployed into self-employment may therefore put emphasis on creating a framework that is generally conducive to entrepreneurial activity such as minimizing bureaucracy, promoting stable and predictable institutions, banning financial punishment for entrepreneurial behavior such as taxing wages lower than profits, and training activities to teach entrepreneurial skills and to raise awareness about business opportunities.

REFERENCES

Acs, Zoltan, David Audretsch, Pontus Braunerhjelm, Bo Carlsson (2004). The Missing Link: The Knowledge Filter and Entrepreneurship in Endogenous Growth, *CEPR Discussion Paper*. 4783.

Aldrich, Howard (1999). *Organizations Evolving*. London et al.: Sage Publications.

Audretsch, David (2007). *The Entrepreneurial Society*. Oxford: Oxford University Press.

Audretsch, David, Martin Carree, Adriaan J. van Stel and Roy Thurik (2002). Impeded Industrial Restructuring: The Growth Penalty, *Kyklos*. 55: 81-98.

Audretsch, David and Max Keilbach (2004). Entrepreneurship Capital and Economic Performance, *Regional Studies*. 38(8): 949-959.

Audretsch, David and Roy Thurik (2000). Capitalism and Democracy in the 21st Century: From the Managed to the Entrepreneurial Economy, *Journal of Evolutionary Economics*. 10: 17-34.

Benz, Matthias and Bruno Frey (2008). Being Independent is a Great Thing: Subjective Evaluations of Self-Employment and Hierarchy, *Economica*. 75: 362-383.

Blanchflower, David (2000). Self-employment in OECD countries, *Labour Economics*. 7: 471-505.

Blanchflower, David and Andrew Oswald (1998). What Makes an Entrepreneur?, *Journal of Labour Economics*. 16(10): 26-60.

Blanchflower, David and Andrew Oswald (1999). Wellbeing, Insecurity and the Decline of American Job Satisfaction, *Working Paper University of Warwick*.

Blanchflower, David and Andrew Oswald (2004). Well-Being Over Time in Britain and the USA, *Journal of Public Economics*. 88: 1359-1386.

Blanchflower, David, Andrew Oswald and Alois Stutzer (2001). Latent Entrepreneurship Across Nations, *European Economic Review*. 45: 680-691.

Block, Jörn and Philipp Sandner (2008). Necessity and Opportunity Entrepreneurs and Their Duration in Self-Employment, *Journal of Industry, Competition, and Trade*. Forthcoming.

Busenitz, Lowell and Jay Barney (1997). Differences Between Entrepreneurs and Managers in Large Organizations: Biases and Heuristics in Strategic Decision-Making, *Journal of Business Venturing*. 12: 9-30.

Camerer, Colin and Dan Lovallo (1999). Overconfidence and Excess Entry: An Experimental Approach, *American Economic Review*. 89: 306-318.

Clark, Andrew E. (2001). What Really Matters in A Job? Hedonic Measurement of Quit Data, *Labour Economics*. 8: 223-242.

Cooper, Arnold, Carolyn Woo and William C. Dunkelberg (1988). Entrepreneurs' Perceived Chances for Success, *Journal of Business Venturing*. 3: 97-108.

Di Tella, Rafael, Robert J. MacCulloch and Andrew J. Oswald (2001). Preferences Over Inflation and Unemployment: Evidence from Surveys of Happiness, *American Economic Review*. 91(1): 335-341.

Dohmen, Thomas J., Armin Falk, David Huffman, Uwe Sunde, Jürgen Schupp and Gerd G. Wagner (2005). Individual Risk Attitudes: New Evidence from a Large, Representative, Experimentally-Validated Survey. IZA Discussion Paper No. 1730.

Dunne, Timothy, Mark J. Roberts and Larry Samuelson (1988). Patterns of Firm Entry and Exit in US Manufacturing Industries, *Rand Journal of Economics*. 19: 495-515.

Frey, Bruno, Matthias Benz and Alois Stutzer (2004). Introducing Procedural Utility: Not Only What, but Also How Matters, *Journal of Institutional and Theoretical Economics*. 160: 377-401.

Frey, Bruno and Alois Stutzer (2002). What Can Economists Learn from Happiness Research?, *Journal of Economic Literature*. XL (June): 402-435.

Gosling, Samuel D., Rentfrow, Peter J. and William B. Swann (2003). A Very Brief Measure of the Big-Five Personality Domains. *Journal of Research in Personality*. 37(6): 504-528.

Gove, Walter R., Michael Hughes and Carolyn Briggs Style (1983) Does Marriage Have Positive Effects on the Pschological Well-Being of the Individual, *Journal of Health and Social Behavior*. 24: 122-131.

Hamilton, Barton (2000). Does Entrepreneurship Pay? An Empirical Analysis of the Returns to Self-Employment, *Journal of Political Economy*. 108: 604-631.

Kirzner, Israel M. (1973). *Competition and Entrepreneurship*. Chicago and London: The University of Chicago Press.

Koellinger, Philipp and Maria Minniti (2006). Not For Lack of Trying: American Entrepreneurship in Black and White, *Small Business Economics*. 27: 59-79.

Koellinger, Philipp, Maria Minniti and Christian Schade (2007). "I Think I Can, I Think I Can": Overconfidence and Entrepreneurial Behavior, *Journal of Economic Psychology*. 28: 502-527.

Kruskal, W. H. and W. A. Willis (1952). Use of Ranks in One-Criterion Variance Analysis, *Journal of the American Statistical Association*. 47: 583-621.

Linn, Margaret W., Richard Sandifer and Shayna Stein (1985). Effects of Unemployment on Mental and Physical Health, *American Journal of Public Health*. 75(5): 502-506.

Marks, Gary N. and Nicole Fleming (1999). Influences and Consequences of Well-Being among Australian Young People: 1980-1995, *Social Indicators Research*. 46: 301-323.

Moskovitz, Tobias and Annette Vissing-Jørgensen (2002). The Returns to Entrepreneurial Investment: A Private Equity Premium Puzzle?, *American Economic Review*. 92: 745-778.

Murphy, Gregory C. and James A. Athanasou (1999). The Effect of Unemployment on Mental Health, *Journal of Occupational and Organizational Psychology*. 72(1): 83-99.

Parasuraman, S. and C. A. Simmers (2001). Type of Employment, Work-Family Conflict and Well-Being: A Comparative Study, *Journal of Occupational Behavior*. 22: 551-568.

Reynolds, Paul, Niels Bosma, Erkko Autio, Steve Hunt, Natalie de Bono, Isabel Servais, Paloma Lopez-Garcia and Nancy Chin (2005). Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998-2003, *Small Business Economics*. 24: 205-231.

Ryan, Edward L. and Richard M. Deci (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior, *Psychological Inquiry*. 11(4): 227-268.

Sandner, Philipp, Jörn Block and Andreas Lutz (2008). Determinanten des Erfolgs staatlich geförderter Existenzgründungen—eine empirische Untersuchung, *Zeitschrift für Betriebswirtschaft*. 78(7/8): 753-777.

Schmitz, James A. (1989). Imitation, Entrepreneurship, and Long-Term Growth, *Journal of Political Economy*. 97(3): 721-739.

Schumpeter, Joseph (1934). *The Theory of Economic Development*. Cambridge: Harvard University Press.

Sheskin, David J. 2007. *Handbook of Parametric and Nonparametric Statistical Procedures*. Boca Raton: Taylor and Francis Group.

Van Stel, André, Martin Carree and Roy Thurik (2005). The Effect of Entrepreneurial Activity on National Economic Growth, *Small Business Economics*. 24: 311-321.

Winkelmann, Liliana and Rainer Winkelmann (1998). Why Are the Unemployed So Unhappy? Evidence from Panel Data, *Economica*. 65(257): 1-15.

Table 1a: Descriptive statistics I

Variables	Values	Frequency	Percent
Opportunity/necessity entrepreneur	Opportunity	698	45%
	Necessity	266	17%
	A combination of both	583	38%
Unemployment	0 months	953	62%
	1-6 months	282	18%
	7-12 months	203	13%
	>12 months	109	7%
Female	Yes	561	36%
	No	986	64%
Age	<25 years	18	1%
	25-34 years	304	20%
	35-44 years	638	41%
	45-54 years	443	29%
	>55 years	144	9%
Wealth	Less than half a year	851	55%
	More than half a year	696	45%
German	Yes	1,473	95%
	No	74	5%
(School) education	9 years	72	5%
	10 years	285	18%
	12 years	292	19%
	13 years	898	58%
Industry experience	Yes	1,030	67%
	No	517	33%
Capital invested	<10,000€	1,035	67%
	10,000-25,000€	304	20%
	25,000-50,000€	123	8%
	>50,000€	85	5%
Age of the start-up	<1 year	453	29%
	1-2 years	417	27%
	2-3 years	269	17%
	3-4 years	175	11%
	>4 years	233	15%
East Germany	Yes	220	14%
	No	1,327	86%
Industry categories	Building sector	89	6%
	IT/telecommunication sector	220	14%
	Retail sector	96	6%
	Health sector	89	6%
	Manufacturing	17	1%
	Culture, event management, and marketing	256	17%
	Sales and distribution	76	5%
	Consumer services	28	2%
	Other firm services	84	5%
	Legal services, training, and consulting	388	25%
	Small trade	41	3%
	Translation service and journalism	60	4%
	Hotel and restaurant	15	1%
	Other	88	6%

Table1b: Descriptive Statistics II

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	Mean	Std. dev.
I have achieved a high level of income.	12%	32%	33%	18%	5%	2.72	1.06
I have achieved a high level of creativity.	1%	4%	21%	43%	31%	3.98	0.88
I have achieved a high level of independence.	1%	12%	27%	41%	19%	3.65	0.95
I have achieved a high level of flexibility in working time.	1%	7%	18%	44%	30%	3.95	0.93
I have achieved a high level of security.	12%	40%	37%	10%	1%	2.48	0.88
Please evaluate your start-up regarding overall satisfaction? not successful at all (1), very successful (5)	0.3%	3.6%	22.7%	54.0%	19.4%	3.89	0.76
Extraversion (min. 2; max. 14)						9.96	2.42
Disagreeableness (min. 2; max. 14)						6.96	1.68
Conscientiousness (min. 2; max. 14)						11.10	2.24
Emotional instability (min. 2; max. 14)						6.19	2.53
Openness to experience (min. 2; max. 14)						11.15	1.81
Risk tolerance (min. 1; max. 7)						4.39	1.22

Table 2a: Univariate Analysis I

(In the cells: mean/median of satisfaction with start-up; 1: minimum, 5: maximum)

I have achieved a …	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		P-value between-groups analysis of variance	P-value Kruskal-Wallis test
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median		
.. high level of income.	3.22	3	3.58	4	4.02	4	4.39	4	4.73	5	<0.001	<0.001
.. high level of creativity.	3.70	4	3.97	4	3.70	4	3.86	4	4.05	4	<0.001	<0.001
.. high level of independence.	3.40	3	3.47	4	3.73	4	3.98	4	4.19	4	<0.001	<0.001
.. high level of flexibility in working time.	3.72	4	3.74	4	3.80	4	3.85	4	4.03	4	<0.001	<0.001
.. high level of security.	3.35	3	3.73	4	4.08	4	4.35	4	4.67	5	<0.001	<0.001

Table 2b: Univariate Analysis II

Variables	Mean of satisfaction with start-up (Std. dev) (1: minimum; 5: maximum)	P-value Kruskal-Wallis test/ between-groups analysis of variance
Opportunity/necessity entrepreneur		
Opportunity	4.07 (0.70)	
Necessity	3.58 (0.81)	<0.001
A combination of both	3.80 (0.75)	
Unemployment		
0 months	4.00 (0.73)	
1-6 months	3.83 (0.72)	
7-12 months	3.73 (0.77)	<0.001
>12 months	3.38 (0.85)	

Table 3: Ordered Logit Regression
(Dependent variable: satisfaction with start-up)

Variables	Model I Coeff. (SE)		Model II Coeff. (SE)		Model III Coeff. (SE		Model IV Coeff. (SE	
Level of income	1.26 (0.06)	***	1.26 (0.07)	***	1.07 (0.07)	***	1.06 (0.07)	***
Level of creativity					0.17 (0.07)	**	0.15 (0.08)	**
Level of independence					0.31 (0.07)	***	0.29 (0.07)	***
Level of flexibility in working time					-0.03 (0.07)		-0.01 (0.07)	
Level of security					0.34 (0.08)	***	0.33 (0.08)	***
Opportunity entrepreneur (dummy)[1]							0.31 (0.12)	**
Necessity entrepreneur (dummy)[1]							-0.57 (0.16)	***
Unemployment (1-6 months)[2]							-0.05 (0.14)	
Unemployment (7-12 months)[2]							-0.08 (0.16)	
Unemployment (>12 months)[2]							-0.70 (0.27)	***
Hours worked							0.08 (0.02)	***
Socio-demographic variables								
Female (dummy)			0.16 (0.13)		0.12 (0.13)		0.23 (0.13)	*
Age (<25 years)[3]			0.91 (0.42)	**	0.87 (0.41)	**	0.70 (0.42)	*
Age (25-34 years)[3]			0.26 (0.15)	*	0.20 (0.15)		0.15 (0.16)	
Age (45-54 years)[3]			-0.28 (0.13)	**	-0.35 (0.13)	***	-0.23 (0.13)	*
Age (>55 years)[3]			-0.38 (0.23)		-0.53 (0.24)	**	-0.23 (0.24)	
Married (dummy)			0.17 (0.12)		0.13 (0.12)		0.16 (0.12)	
Wealth (dummy)			0.24 (0.11)	**	0.14 (0.12)		0.13 (0.12)	
German (dummy)			0.53 (0.25)	**	0.46 (0.24)	*	0.55 (0.25)	**
(School)education (10 years)[4]			0.71 (0.33)	**	0.68 (0.33)	**	0.67 (0.35)	*
(School) education (l2 years)[4]			0.72 (0.33)	**	0.71 (0.34)	**	0.75 (0.36)	**
(School) education (13 years)[4]			1.37 (0.33)	***	1.32 (0.33)	***	1.30 (0.35)	***
Industry experience (dummy)			0.15 (0.12)		0.20 (0.13)		0.17 (0.13)	
Personality								
Extraversion			0.04 (0.02)	*	0.03 (0.02)		0.01 (0.03)	
Disagreeableness			0.04 (0.03)		0.03 (0.03)		0.03 (0.03)	
Conscientiousness			0.05 (0.03)	**	0.04 (0.03)		0.02 (0.03)	
Emotional instability			-0.07 (0.02)	***	-0.05 (0.02)	**	-0.05 (0.02)	**
Openness to experience			0.04 (0.03)		0.01 (0.03)		0.01 (0.03)	
Risk tolerance			0.10 (0.05)	**	0.08 (0.05)		0.03 (0.05)	

Start-up characteristics				
Capital invested (10,000-25,000€)[5]		0.07 (0.14)	0.08 (0.14)	-0.06 (0.15)
Capital invested (25,000-50,000€)[5]		0.19 (0.20)	0.07 (0.20)	-0.16 (0.20)
Capital invested (>50,000€)[5]		0.27 (0.26)	0.33 (0.26)	0.07 (0.27)
Age of the start-up (1-2 years)[6]		0.06 (0.14)	0.08 (0.14)	0.14 (0.14)
Age of the start-up (2-3 years)[6]		-0.05 (0.16)	-0.08 (0.16)	-0.02 (0.16)
Age of the start-up (3-4 years)[6]		0.00 (0.20)	-0.08 (0.20)	-0.01 (0.20)
Age of the start-up (>4 years)[6]		0.05 (0.18)	-0.09 (0.18)	-0.11 (0.18)
East Germany (dummy)		-0.25 (0.15) *	-0.23 (0.15)	-0.13 (0.15)
Industry categories (13 categories)[7]		p=0.019	p=0.025	p=0.012
N	1,547	1,547	1,547	1,547
Pseudo R^2	0.16	0.21	0.22	0.24
Loglikelihood	-1,459	-1,381	-1,348	-1,321
Wald chi^2 (df)	421 (1)	557 (40)	570 (44)	592 (50)
Prob>chi^2	0.000	0.000	0.000	0.000

[1] "A combination of both" is used as reference category.
[2] "0 months" is used as reference category.
[3] "35-44 years" is used as reference category.
[4] "9 years" is used as reference category.
[5] " <10,000€" is used as reference category.
[6] "Less than 1 year" is used as reference category.
[7] "Hotel and restaurant" is used as reference category.
* p<0.10 ; ** p<0.05 ; *** p<0.01; two-sided tests are used;
df= degrees of freedom; SE=robust standard errors

Table A1: Description of Variables

Variables	Question/statement in the questionnaire
Satisfaction with start-up	Please evaluate your start-up with regard to satisfaction? not successful at all (1), not successful (2), neutral (3), successful (4), very successful (5)
Level of income	Please evaluate your start-up with regard to income? I have achieved a high level of income: strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)
Level of creativity	Please evaluate your start-up with regard to creativity? I have achieved a high level of creativity: strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)
Level of independence	Please evaluate your start-up with regard to independence? I have achieved a high level of independence: strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)
Level of flexibility in working time	Please evaluate your start-up with regard to flexibility in working time? I have achieved a high level of flexibility in working time: strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)
Level of security	Please evaluate your start-up with regard to security? I have achieved a high level of security: strongly disagree (1), disagree (2), neutral (3), agree (4), strongly agree (5)
Opportunity/necessity entrepreneur	Why did you engage in self-employment? to take advantage of a new business opportunity (opportunity entrepreneur), no better choices for work (necessity entrepreneur), a combination of both (reference category); see also Reynolds et al. (2005).
Unemployment	How long have you been unemployed before selecting into self-employment? 0 months (1), 1-6 months (2), 7-12 months (3), more than 12 months (4)
Hours worked	How many hours do you work per week? <15 (1), 15-20, 21-25, 26-30, 31-35, 36-40, 41-45, 46-50, 51-55, 56-60, 61-65, 66-70. 71-75, 76-80, >80 (15)
Socio-demographic variables	
Female	What is your gender?
Age	What is your current age?
Married	What is your marital status?
Children	How many children do you have? 0, 1, 2, 3, or more than 3.
Wealth	How long could you live from your wealth without any additional income? Less than half year (0), More than half year (1)
German	Is German your first language?
(School) education	What is your highest degree of secondary education? No degree or “Hauptschulabschluss” (9 years), “Mittlere Reife” (10 years), “Fachhochschulreife (12 years), “Abitur” (13 years)
Industry experience	Did you already have working experience in the particular industry in which you started your business?
Personality	
Extraversion	Scale of big-five personality domains suggested by Gosling et al. (2003); scale ranges from 2 to 14
Disagreeableness	Scale of big-five personality domains suggested by Gosling et al. (2003); scale ranges from 2 to 14
Conscientiousness	Scale of big-five personality domains suggested by Gosling et al. (2003); scale ranges from 2 to 14
Emotional instability	Scale of big-five personality domains suggested by Gosling et al. (2003); scale ranges from 2 to 14
Openness to experience	Scale of big-five personality domains suggested by Gosling et al. (2003); scale ranges from 2 to 14
Risk tolerance	Generally, are you willing to take risks, or do you try to avoid taking risks? Not at all risk tolerant (1), medium level of risk tolerance (4), very risk tolerant (8) (see also Dohmen et al., 2005)
Start-up characteristics	

Capital invested	How much funds did you raise to start your business (including everything)? < 10,000€ (1), 10,000-25,000€ (2), 25,000-50,000€ (3), > 50,000€ (4)
Age of the start-up	In which year did you start your business?
East Germany	Please state the first digit of your zip code. 0 and 1 refer to East Germany; 2-9 refer to West Germany
Industry categories	Building sector; IT/telecommunication sector; retail sector; health sector; manufacturing; culture, event management, and marketing; sales and distribution; consumer services; other firm services; legal services, training, and consulting; small trade; translation service, journalism; hotel and restaurant; other

Table A2: Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	Satisfaction with start-up																										
2	Hours worked	0.09																									
3	Level of income	0.54	0.08																								
4	Level of creativity	0.13	0.06	0.04																							
5	Level of independence	0.30	0.02	0.26	0.32																						
6	Level of flexibility in working time	0.12	-0.10	0.09	0.35	0.36																					
7	Level of security	0.39	0.01	0.55	0.13	0.26	0.12																				
8	Opportunity entrepreneur	0.22	0.06	0.12	0.11	0.11	0.08	0.10																			
9	Necessity entrepreneur	-0.18	-0.01	-0.05	-0.09	-0.07	-0.09	-0.07	-0.41																		
10	Unemployment (>12 months)	-0.18	-0.02	-0.11	0.02	-0.08	-0.01	-0.05	-0.17	0.09																	
11	Female	0.01	-0.25	-0.06	0.04	0.04	0.01	-0.00	0.01	-0.03	-0.05																
12	Age (>55 years)	-0.07	0.01	-0.02	0.02	0.07	0.01	0.04	-0.15	0.11	0.16	-0.13															
13	Married	0.04	-0.02	0.04	-0.01	0.04	-0.02	0.07	-0.03	0.03	-0.01	-0.13	0.11														
14	Wealth	0.11	-0.03	0.14	-0.00	0.12	0.08	0.14	0.05	-0.01	-0.02	-0.08	0.14	0.10													
15	German	0.03	-0.03	0.00	0.03	0.03	-0.02	-0.01	-0.05	0.05	0.00	-0.02	-0.02	-0.03	-0.00												
16	School education (13 years)	0.16	-0.01	0.02	0.02	0.08	0.06	-0.03	0.09	-0.07	-0.08	0.08	-0.05	-0.03	0.10	-0.07											
17	Industry experience	0.14	0.02	0.16	-0.06	0.06	-0.03	0.04	0.02	0.04	-0.12	-0.10	0.02	0.06	0.10	0.05	0.09										
18	Extraversion	0.07	0.10	-0.01	0.21	0.12	0.09	-0.01	0.11	-0.07	-0.07	0.18	-0.04	-0.03	-0.06	-0.04	0.03	-0.06									
19	Disagreeableness	-0.00	0.08	-0.01	-0.06	0.01	-0.03	-0.01	-0.01	0.00	0.00	-0.09	0.06	0.05	0.04	-0.03	0.02	0.00	-0.01								
20	Conscientiousness	0.10	0.02	0.07	0.11	0.11	0.07	0.11	0.08	-0.07	-0.00	0.16	0.04	0.01	0.06	0.03	-0.04	0.01	0.03	-0.06							
21	Emotional instability	-0.14	-0.01	-0.13	-0.09	-0.10	-0.07	-0.18	-0.09	0.04	0.05	0.11	-0.06	-0.04	-0.03	-0.04	0.01	-0.07	-0.05	0.26	-0.22						
22	Openness to experience	0.03	0.04	-0.04	0.33	0.10	0.09	-0.01	0.08	-0.10	0.01	0.08	0.00	-0.02	-0.09	-0.03	-0.05	-0.09	0.36	-0.10	0.14	-0.15					
23	Risk tolerance	0.09	0.14	0.06	0.14	0.10	0.10	0.05	0.18	-0.14	-0.09	-0.13	0.02	-0.03	-0.05	-0.02	0.01	-0.02	0.27	0.03	-0.04	-0.12	0.25				
24	Capital invested (>50,000€)	0.05	0.17	0.03	0.02	0.00	-0.07	0.01	0.09	-0.05	-0.04	-0.02	-0.05	0.05	0.06	0.04	-0.00	-0.03	0.02	0.02	0.02	-0.00	-0.01	0.08			
25	Age of the start-up (>4 years)	0.05	0.07	0.10	0.07	0.10	0.06	0.13	0.02	0.00	-0.02	-0.01	0.16	0.03	0.02	0.04	0.02	-0.05	-0.00	0.03	0.01	-0.03	0.02	0.08	0.05		
26	East Germany	-0.06	-0.03	-0.05	0.02	-0.02	-0.00	-0.05	-0.08	0.06	0.07	0.02	0.00	-0.03	-0.07	0.00	0.01	-0.01	-0.03	0.07	-0.00	0.07	0.02	0.00	-0.02	-0.05	
27	Industry "culture, event management, and marketing"	-0.00	-0.02	-0.03	0.13	0.01	0.04	-0.03	-0.02	0.00	-0.03	0.07	-0.10	-0.09	-0.04	-0.03	0.11	0.07	0.05	0.02	-0.04	0.09	0.07	-0.03	-0.04	-0.06	0.08

Correlations with an absolute value greater than **0.04** have a p-value below 0.1; correlations with an absolute value greater than **0.05** have a p-value below 0.05

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