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Desperate entrepreneurs: no opportunities, no skills

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Abstract Promoting entrepreneurship has become an important policy strategy in Europe in the hope to stimulate the crisis-shaken economy. In this paper, we caution against undue expectations. Using data from the Global Entrepreneurship Monitor for 17 European countries, we find that a considerable proportion of the new entrepreneurs have started a business despite a negative perception of business opportunities as well as lack of confidence in their own entrepreneurial skills. This proportion has increased during the economic crisis, especially in those countries which were particularly affected by economic downturn and rising unemployment. We extend existing entrepreneurship theories to account for this phenomenon, which we call "nons-entrepreneurship". Testing the hypotheses derived from our model, we find that the primary motivation for these people to turn to entrepreneurship is the lack of other options to enter the labour market during the economic crisis. Still, this sort of "desperate" entrepreneurship does not equal necessity based entrepreneurship, warranting further research.

Keywords Entrepreneurship · Economic crisis · Entrepreneurial skills · Opportunities

Introduction

Since the outbreak of the economic crisis, promoting entrepreneurship has become an increasingly important labour market policy in many European countries. Various political programmes foster and support small-scale business start-ups in anticipation of multifaceted benefits, ranging from the end of unemployment for the new entrepreneur on the individual level to job creation through successful businesses and economic

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development on the macro level. As part of the 2020 Action Strategy, the European Commission launched different measures to bring Europe back to growth and higher levels of employment. One of the core instruments of this strategy is to foster entrepreneurial activity, and there are high hopes that this approach will help to create new jobs and stimulate the economy.

Nevertheless, while overall entrepreneurial activity figures indicate a positive development of individual involvement in enterprising efforts, we caution against undue expectations. Extrapolated data from the Global Entrepreneurship Monitor (GEM) show that in the 17 European countries analysed in our study,[1] there are 22.2 million working-age individuals actively involved in starting or running a new business activity, compared to 15.8 million individuals in 2006, just before the recent economic crisis.[2] This seemingly indicates a desirable trend. However, a closer look at this set of entrepreneurial starters reveals that a considerable number of these individuals start a new business despite having a negative perception of business opportunities as well as a lack of self-confidence in their own entrepreneurial skills. Our guiding hypothesis is that these entrepreneurs do not conform to the picture of entrepreneurship in the European Agenda but that they act out of desperation. We call such individuals "nons-entrepreneurs" (no opportunities, no skills). Table 2 in the Appendix displays the proportions of early stage entrepreneurs in 2006 and in 2012 who see either no opportunities, do not believe in their own skills, or both – the latter being "nons-entrepreneurs".

In 2012, almost every tenth early-stage entrepreneur in our sample was a "nons-entrepreneur". Translated to real numbers using extrapolation to national populations, this would mean that about 2.1 million individuals in the 17 countries under review may be involved in entrepreneurial activity without actually seeing opportunities or believing in their own skills. Compared to 1.1 million in 2006, this number has almost doubled.[3]

In terms of achieving sustainable growth and higher levels of employment, this phenomenon may be counterproductive, as the quality of business ventures performed by "nons-entrepreneurs" is questionable. Usually, such individuals are less likely to engage in sophisticated activities and do not plan market expansion outside their immediate surroundings. Their ambitions in job creation remain at the level of solo-employment. Moreover, "nons-entrepreneurs" may be more likely to encounter a failure (Block and Sandner 2009; Block and Wagner 2010; Caliendo and Kritikos 2010), which may not only discourage them from future activity, but also provide a negative role model for others (Aldrich and Kim 2007; Mungai and Velamuri 2011; Lindquist et al. 2015).

In fact, from a macro perspective, not all types of entrepreneurship can be regarded as favourable for economic prosperity. Baumol (1990) was one of the first who distinguished between the mere level of entrepreneurial activity and the type of these endeavours. Apart from individual characteristics, he argued that the institutional setting in a country influences the orientation of entrepreneurship towards productive (e.g. private-sector wealth creation) activities. The institutional mix, thus, does not only affect the opportunities that individuals see and pursue, but also the extent to which their entrepreneurial engagement is advantageous for personal and societal welfare. Several

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[1] For the enumeration of countries, see Methodology section.
[2] The extrapolation was performed using GEM 2012 and 2006 data on total early-stage entrepreneurial activity of adult individuals (source: GEM 2012, GEM 2006) and 2012 and 2006 population statistics (source: World Bank).
[3] Source: own calculations based on GEM data.

empirical studies have provided evidence in support of Baumol's hypothesis, indicating that the economic and institutional environment determines the effect of entrepreneurial activity on national wealth and economic growth (Boettke and Coyne 2003; Kreft and Sobel 2005; Bjørnskov and Foss 2008; Sobel 2008; Smallbone and Welter 2012).

The existence of nons-entrepreneurs presents not only a potential economic problem, but also a theoretical puzzle. The Krueger-Brazeal-Model (Krueger and Brazeal 1994; Krueger et al. 2000) posits that perceived feasibility (i.e. the perception of opportunities and the belief in one's own skills) is a *necessary* condition for the development of entrepreneurial intentions. Yet, if this is the case, how is it possible that people start a business without having optimistic perceptions concerning opportunities and skills?

We argue that these people are "desperate" and act out of necessity. Lacking any other options to succeed on the labour market, they are pushed into entrepreneurship – especially in times of economic crisis. Using logistic regression models, we test this hypothesis drawing on data from the GEM's Adult Population Surveys in 2006 and 2012, thereby comparing the situation before the crisis with the situation after the peak of the crisis. Our analysis confirms that while necessity had no significant influence in 2006, it has indeed become a driving factor behind "nons-entrepreneurship" in 2012.

The rest of the paper proceeds as follows. First, we outline important theoretical and empirical accounts concerning entrepreneurship. Then, we turn to potential theoretical explanations of the phenomenon of "nons-entrepreneurs". The methodology section describes the data and methods used. In the analysis section, we offer empirical evidence of the existence and the distribution of nons-entrepreneurship and test our hypotheses concerning the causes of this phenomenon. We conclude with a discussion of our findings and options for future research.

The who, when and why of entrepreneurship

Research on the factors influencing the decision to engage in entrepreneurial activity by setting up a venture provides heterogeneous results (Rocha 2012). The traditional entrepreneurship literature has analysed entrepreneurship as a specific profession adopted by certain types of people. Based on work by Schumpeter (1947), who drew on psychological concepts, the aim of this approach was to identify the stereotypical entrepreneur. The main psychological characteristics that are associated with entrepreneurial activity are internal locus of control, propensity to take risk, self-confidence, need for achievement, innovativeness and self-efficacy (Bandura 1977; Brockhaus 1980; Tucker 1988; Bandura 1993, 1997; Sagie and Elizur 1999; Krueger et al. 2000; Shane et al. 2003; Locke and Baum 2007; Rauch and Frese 2007; Liñán 2008; Brandstätter 2011; Ferreira et al. 2012). Entrepreneurial risk perception has been a particular focus in the literature. Yet, results are not conclusive, as recent findings contradict the "conventional wisdom" that risk is an essential characteristic of entrepreneurship and that an individual's risk attitude is therefore one of the crucial variables when it comes to choosing between entrepreneurship and a salaried job (Caliendo et al. 2009). Concerning more objective attributes like age, gender, and formal education, research shows that all these aspects influence entrepreneurial activity. Data indicate that men are more likely to start a business than women (Blanchflower 2004;

Langowitz and Minniti 2007), and that the highest share of newly self-employed individuals can be found in the age group between 30 and 40 years (Pfeiffer and Reize 2000; Caliendo and Kritikos 2010). Founders of start-ups are generally more highly educated (Hinz and Jungbauer-Gans 1999). Yet, it is not primarily the objective skill level of an individual that affects the chances of becoming an entrepreneur – even more important is the individual's perception of his or her own skills (Forbes 2005), with entrepreneurs often having greater confidence in their skills than warranted by their actual economic success (Koellinger et al. 2007).

Besides individual characteristics, external factors such as institutional and economic circumstances influence individual decisions and serve as push or pull factors for entrepreneurship (Begley et al. 2005; Dawson and Henley 2012). Push factors often have negative connotations (e.g. job loss). Alternatively, pull factors encourage people to start a business (business opportunity) (Kirkwood 2009). Important institutional aspects that may act as pull factors (or boost the effect of push factors) include, for example, the nature of the rules and their enforcement and the influence of regulation on the level of risk involved in business formation (Baumol and Strom, 2007). Empirical work suggests that the small-business sector is larger in countries in which the costs for business start-ups are lower (Ayyagari et al. 2007; Stenholm et al. 2013). Moreover, access to resources, especially the availability of financial means, is a core condition for successful venture creation (Evans and Leighton 1989; Busenitz et al. 2000; Åstebro and Bernhardt 2003; Andersson and Wadensjö 2007; Caliendo et al. 2015).

Two macro-economic factors are also considered as particularly important for entre-preneurship: the general economic development of a country and, more specifically, the national or regional unemployment rate (Carrasco 1999; Deli 2011). Favourable economic conditions may act as pull factors, because prospects for both successful business creation and job search in case of venture failure are better (Carrasco 1999). Bad conditions, in contrast, may be push-factors, forcing individuals into self-employment due to lack of other opportunities (Carrasco 1999; Parker 2004). Yet, the actual effect of macro-economic conditions remains unclear: while economic downturns may increase the number of people entering entrepreneurship due to reasons such as involuntary job loss or scarcity of vacancies, people may also be discouraged because of reduced profitability expectations (Thompson 2011). Evidence provided by Fairlie (2013) suggests that the push effects of bad labour market conditions outweigh the discouragement effects, finally resulting in higher levels of business creation. Nevertheless, the relationship between unemployment and entrepreneurship is still ambiguous, as theoretical considerations and empirical evidence equally suggest positive and negative results (Meager 1992; Cowling and Mitchell 1997; Carrasco 1999; Audretsch et al. 2005; Thurik et al. 2008). Notably, theoretical predictions for the effects of the national or local unemployment rate are ambiguous (Carrasco 1999; Dawson and Henley 2012). Likewise, empirical results are inconclusive (Parker 2004) and vary between micro and macro level.[4]

Instead of simply identifying those who are most likely to become entrepreneurs or analysing the favourable and unfavourable conditions for entrepreneurship, another prominent strand of the literature draws on behavioural approaches focusing on

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[4] Andersson and Wadensjö (2007) find that more unemployed persons entering self-employment does not necessarily imply that an increase in the general unemployment rate leads to higher self-employment rates on the regional or the national level. Results by Deli (2011), in contrast, indicate that higher local unemployment rates increase the probability of entry into self-employment.

individual decisions to start a business. One of the most influential micro-founded models of entrepreneurial activity is the model of entrepreneurial intentions elaborated by Krueger and Brazeal (1994), which is based on the Theory of Planned Behaviour (TBP) by Izek Ajzen and Martin Fishbein (Fishbein and Ajzen 1975; Ajzen and Fishbein 1980; Ajzen 1991). TPB has gained a prominent position in the entrepreneurship literature over the last two decades (Lortie and Castogiovanni 2015), providing a theoretical background for explaining and predicting the development of entrepreneurial intentions and entrepreneurial actions (e.g. Lüthje and Franke 2003; Kautonen et al. 2013; Schlaegel and Koenig 2014; Zhang et al. 2014; Kautonen et al. 2015). Specifically, the Krueger-Brazeal model of entrepreneurial intentions has been applied in various contexts (see, for example, Krueger et al. 2000; Veciana et al. 2005; Guerrero et al. 2008; Liñán 2008; Ozaralli and Rivenburgh 2016) to the extent that even Krueger himself has recently asked: "Does the world yet need another intentions study that differs only in its setting or sample?" (Krueger 2017).

The Krueger-Brazeal model suggests that two factors are antecedents of the intention to start a business: the perceived desirability and the perceived feasibility of being an entrepreneur. Beyond that, two further factors influence the final formation of entrepreneurial intentions, the propensity to act and a precipitating event like a displacement (Krueger and Brazeal 1994; Lucas et al. 2008). In the following paragraphs, we describe the individual components of the model, which is depicted in Fig. 1.

Perceived feasibility is composed of opportunity and skill perception (Koellinger et al. 2007) and is often equated with perceived self-efficacy (e.g. Bandura 1977; Boyd and Vozikis 1994; Bandura 1997). Perceived self-efficacy refers to a person's confidence in his or her own capacities to successfully execute a target behaviour (e.g. Bandura 1977; Boyd and Vozikis 1994; Bandura 1997). This concept is an important component of the theory of planned behaviour as well as of more specific models of entrepreneurial behaviour. Self-efficacy accounts for the fact that an intended behaviour will only be carried out if a person perceives him- or herself as being in possession of the necessary skills, abilities and further internal resources (Fishbein and Ajzen 2010, p. 336). Task-specific self-efficacy and broadly defined perceived feasibility in the context of entrepreneurial behaviour is primarily influenced by two factors that mutually affect each other: first, perception of individual skills and knowledge to start a business and, second, venture opportunity perceptions (Krueger and Brazeal 1994, p. 396).

Perceived desirability is conceptualised in terms of individual attitudes and subjective norms. *Attitudes* towards the act define whether a person positively or negatively appraises a specific behaviour. In regard to venture creation, this appraisal can be conceptualised as a person's motivation to engage in entrepreneurial activities. Subjective social norms are defined as a person's belief that significant others think
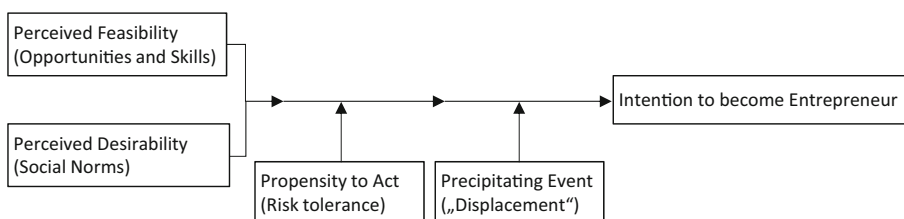
Fig. 1 The Krueger-Brazeal Model. Source: simplified version of Krueger and Brazeal (1994, p. 95)

that certain behaviours are desirable (Ajzen and Fishbein 1980, p. 73). The theory thus implies that people develop their subjective norms by evaluating the perception of other important people or the society as a whole (Ajzen and Fishbein 1980). Subjective norms can therefore enhance an individual's desire to become self-employed by influencing the desirability in a positive way. Empirical studies confirm the positive effect of subjective norms, for example in the form of role modelling or the value of entrepreneurship in a society (Scherer et al. 1989; Dunn and Holtz-Eakin 2000; Davidsson and Honig 2003; Schmitt-Rodermund 2004; Van Auken et al. 2006; Bosma et al. 2011; Obschonka et al. 2011; Liñán et al. 2012; Holienka et al. 2013).

An individual's *propensity to act* refers to his or her desire to gain control over adversity and uncertainty by taking action (Krueger et al. 2000, p. 419). In this respect, the task-specific propensity to act is mirrored in an individual's propensity to take risks. A *precipitating event*, such as job loss or other changes in the personal situation, finally triggers the formation of the intention to become an entrepreneur. The intention, in turn, is the best predictor of actual behaviour (Krueger and Brazeal 1994; Krueger et al. 2000).

Although the Krueger-Brazeal model is well established in the entrepreneurship literature, it has been criticised for its overly positive perception of entrepreneurship (Veciana 2007; Lucas et al. 2008; Zali et al. 2013), where entrepreneurial activity is the desirable outcome and people become entrepreneurs because they are capable and desire it. Yet, this is not necessarily the case. Thus, based on the macro-level concept of push and pull factors, a more recent approach distinguishes between necessity entrepreneurship (push) and opportunity entrepreneurship (pull) (Reynolds et al. 2002; Williams 2008; Verheul et al. 2010; Sheehan and Mc Namara 2015). *Opportunity-driven entrepreneurs* are defined as those who are positively motivated to become self-employed. This group constitutes the "classical case" of the prior entrepreneurship literature. The choice to become self-employed is autonomous and based on the consideration that entrepreneurial activity is socially and individually desirable. Opportunity driven entrepreneurs are characterized by a high level of risk acceptance, an internal locus of control and a strong need for achievement (Brockhaus 1980; Shane et al. 2003). *Necessity-driven entrepreneurship* refers to individuals who become self-employed because of personal or external factors that constrain the individual's freedom. While opportunity-driven entrepreneurs are motivated by internal personal objectives and goals, necessity-driven entrepreneurs are motivated by external opportunities or constraints (Dawson and Henley 2012). These may be personal or situational factors and individual circumstances of life, like caring responsibilities, unemployment or belonging to the "working poor" (Newman 1999; Haas 2013). They may also be environmental influences that are not person-specific but refer to macro-environmental factors, such as funding schemes, interest rates, or welfare state regimes (Haas 2013). Necessity-driven entrepreneurship is not necessarily a desired outcome. Being pushed into self-employment bears the risk of not being well prepared before engaging in entrepreneurial activities (Carrasco 1999; Pfeiffer and Reize 2000; Andersson and Wadensjö 2007). Although the formal education level might be similar for all business founders, people that start a business due to unemployment have less employment and industry-specific experience and fewer spillovers from intergenerational transmission (Caliendo et al. 2015). The probability that these endeavours are successful in the long run is thus limited. Furthermore, previous studies have shown that necessity entrepreneurship is associated with smaller growth expectations and less innovation (Reynolds et al. 2002; Block and Wagner 2010;

Caliendo and Kritikos 2010; Zali et al. 2013). As a result, necessity-driven entrepreneurship may not only fail to be the desired outcome from the point of view of the respective entrepreneur, but also from a macro-economic perspective. From the perspective of policy making, it is essential to take this fact into account, as measures that stimulate entrepreneurial engagement are more or less the same for opportunity and necessity entrepreneurs, while their impact is diametrically opposed. As shown by Borozan and Pfeifer (2014), "one size fits all" is not a promising approach when the aim is to promote entrepreneurial activities that positively influence economic growth.

In the following, we will combine the Krueger-Brazeal model with the necessity/opportunity approach, thereby incorporating micro- and macro-level explanations for the development of entrepreneurial intentions, and, more specifically, allow for the existence of "nons-entrepreneurs".

The possibility of "NONS-entrepreneurship"

The Krueger and Brazeal (1994) model explicitly precludes the existence of "nons-entrepreneurs". Since one of the necessary conditions for entrepreneurial intentions - perceived feasibility - is not fulfilled if people neither believe in their own skills nor in good business opportunities, it should be impossible for those individuals to develop the intention to start their own business, let alone to become entrepreneurs. Hence, to account for the possibility of "nons-entrepreneurs", we extend the original model to include the important motivational distinction between necessity and opportunity driven entrepreneurship. We propose four adaptations to the original model:

First, in line with the differentiation between opportunity and necessity driven entrepreneurship, we refine the Krueger-Brazeal model by including necessity as an additional antecedent of entrepreneurial intentions. Thus, we can account for the possibility that the intention to become an entrepreneur is caused by the feeling that there are no other options for (re-)entering the labour market than becoming self-employed.

Second, we assume that not all antecedents (desirability, feasibility and necessity) have to be present for entrepreneurial intentions to form. Instead, we replace the original principle of complementarity between desirability and feasibility (and necessity) with the principle of substitution. This adaptation is crucial to properly anchor the motivational distinction between necessity and opportunity in the model. It expands the explanatory potential of the theory, as "nons-entrepreneurship" becomes theoretically explicable instead of being regarded as an empirical artefact or mere decision error.

Third, we argue that the original chronology of the model does not adequately reflect the individual intention formation process. Contrary, we suggest that the formation of entrepreneurial intentions is a dynamic process over time (Gartner 1985, 1989; Smallbone and Welter 2004; Sarasvathy et al. 2010), where personal circumstances do not only act as precipitating events and thus final triggers for the formation of intentions, but already influence the perceptions of feasibility, desirability, and necessity, as well as the propensity to act.

Finally, it is not only the personal circumstances, but also general institutional and economic conditions that influence this process (Lucas et al. 2008, p. 11). By incorporating external circumstances, the micro-founded Krueger–Brazeal model, which explains the individual decision making process as a function of personal characteristics and perceptions, becomes accessible for macro-level determinants such as national

regulations concerning entrepreneurship or the unemployment rate. The adapted model is presented in Fig. 2.

According to the adapted model, "nons-entrepreneurship" should be observed if the lack of perceived feasibility is substituted by necessity. If no other options are available to enter or remain in the labour market than to become self-employed, people may be pushed into entrepreneurship. Additionally, the lack of perceived feasibility could also be substituted by perceived desirability. If social norms are favourable towards entrepreneurship, for example when entrepreneurs enjoy a high reputation in society, even those individuals may be attracted who are not confident that they have the necessary skills and opportunities to start their own business. As a result, people who feel that entrepreneurship is highly valued by others may be more likely to enter entrepreneurship, even as "nons-entrepreneurs". This may be especially true for people with high risk tolerance. People who are not afraid of risking a potential business failure should be more likely to become "nons-entrepreneurs".

In addition to the above-mentioned micro-level factors, macro-level economic and institutional conditions may influence not only the propensity to start a business, but also the propensity to do so without believing in the feasibility of the endeavour. However, the direction of such effects is difficult to predict. On the one hand, a poor economic situation and tight labour market conditions may increase the rate of "nons-entrepreneurs", as more people may turn to entrepreneurship out of necessity and regardless of feasibility perception. On the other hand, if the chances of business success are extremely low, entrepreneurship may not even be considered as an option. Likewise, institutional factors may have diverse effects. If institutional regulations enhance business freedom by facilitating the foundation of new enterprises or mitigating the effects of business failures, this may increase the share of "nons-entrepreneurs" because the hurdles that have to be overcome are smaller and individuals may be pushed more easily into entrepreneurship.

We thus expect that three individual-level factors enhance the probability of "nons-entrepreneurship" – 1) perceived necessity, 2) perceived desirability, and 3) high risk tolerance. For macro-level indicators, the predictions are less clear. A bad economic situation and a high unemployment rate may increase (but at a certain level also decrease) the rate of "nons-entrepreneurs". Business freedom may increase the rate of "nons-entrepreneurs".
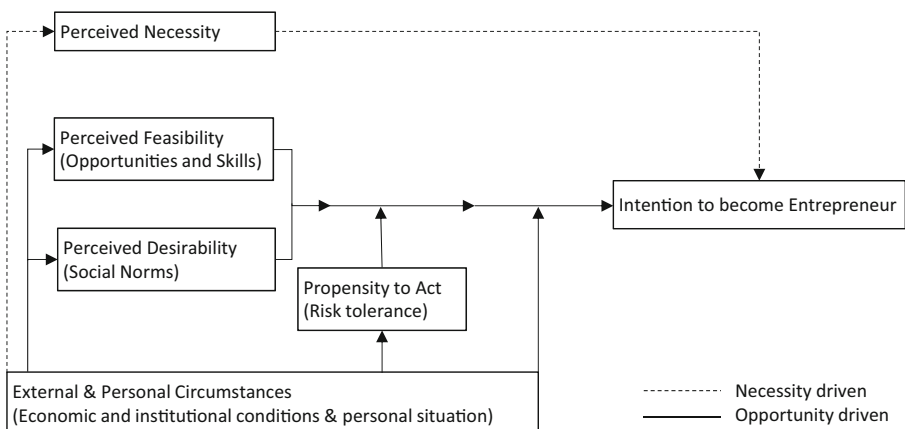

Fig. 2 The adapted Krueger-Brazeal Model. Source: Own adaptation from Krueger and Brazeal (1994, p. 95)

Methodology

To explore the phenomenon of "nons-entrepreneurship", we draw on data from the Global Entrepreneurship Monitor's (GEM) Adult Population Surveys. Started in 1999, the GEM is an international project with various partner universities conducting surveys in a large number of countries each year. Specifically, we use GEM data from 2006 and 2012. This enables us to compare the situation before the outbreak of the European economic crisis with the situation when the effects of the crisis had reached the labour markets in many European countries, resulting in business closures and high unemployment rates. We include all EU member states for which GEM-data is available for both years (Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Slovenia, Spain, Sweden, and the United Kingdom) and two associated countries (Norway and Turkey) for reference. Thereby, we can compare countries such as Germany, which were relatively unaffected by the crisis, with countries that experienced a major economic downturn, like Italy, Spain, and Greece. The GEM data comes with demographic weights that account for the distribution of gender within countries, which we combined with weights accounting for the differences in sample sizes across countries. Our data is restricted to early stage entrepreneurs, i.e. those people who are about to start a business as well as those who started one within the last 3.5 years. More precisely, early-stage entrepreneurs are defined in the GEM project as individuals aged 18–64 who are either currently actively involved in setting up a business they will own or co-own, or have already started a business but this business has not paid any wages or salaries for more than 42 months.

Our dependent variable, whether an early stage entrepreneur is a "nons-entrepreneur", or not, is calculated from two GEM items: first, the perception of one's own skills and, second, the perception of opportunities for starting a business. If an early-stage entrepreneur neither perceives him or herself to have the skills required for starting a business, nor thinks that there are currently good opportunities for starting a business, this variable takes the value 1, otherwise it is set to 0.[5]

As independent variables in our regression models, we include individual-level indicators for perceived *Necessity,* perceived *Desirability*, and *Risk tolerance,* as well as an interaction effect between *Desirability* and *Risk tolerance,* to account for the fact that the lack of perceived feasibility might be substituted by high desirability in combination with high risk tolerance according to our adapted theoretical model. *Necessity* indicates whether someone becomes an entrepreneur out of opportunity (0) or out of necessity (1) and is also based on two items from the GEM.[6] As an indicator for perceived *Desirability* of entrepreneurship, we use one of the GEM questions related to subjective norms, i.e. whether a person agrees with the statement "In your country, most people consider starting a new business a desirable career choice." To measure *Risk tolerance*, we draw on the question "Would fear of failure prevent you from starting a business?", with the answer "yes" indicating low, and the answer "no" indicating high risk tolerance.

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[5] Questions: "Do you have the knowledge, skill and experience required to start a new business?" and "In the next six months, will there be good opportunities for starting a business in the area where you live?"

[6] Questions: „Are you involved in this start-up to take advantage of a business opportunity or because you have no better choices for work?" and "Which one of the following, do you feel, is the most important motive for pursuing this opportunity? - to have greater independence and freedom in your working life; to increase your personal income; just to maintain your personal income; none of these"

In addition, we include controls for gender, age and the level of formal education as well as whether the business has already been started. All four variables are taken from the GEM. Regarding the variable *Age*, we also include a quadratic term Age^2 to account for a potential non-linear effect (for example, a higher propensity of "nons-entrepreneurship" among young and old individuals compared to middle-aged individuals). The level of formal education was recoded into "high" (post secondary or higher) and "low" (secondary or lower) education to harmonize the data across survey waves. The variable *Business already started* separates those whose businesses have paid salaries or wages for more than three months from nascent entrepreneurs, who are in the course of setting up a new business.

On the country level, we include measures for the unemployment rate,[7] GDP per capita,[8] and GDP per capita growth[9] in the respective years in our dataset. The variable *Business freedom* captures the procedures, time and cost involved both in starting and closing a business due to the overall burden of government regulations on entrepreneurial activities (cf. Stenholm et al. 2013), as measured by the index of economic freedom (IEF) on a score from 1 to 100 (Holmes et al., 2008). More specific information concerning the computation of the dependent and independent variables, as well as some descriptive statistics, can be found in the appendix (section on measurement of variables and Appendix Table 3).

To test which factors influence the probability of becoming a nons-entrepreneur, we run separate regression models for the years 2006 and the year 2012. Due to the binary structure of the dependent variable, we use logistic regression (Long and Freese 2006).[10]

We employ demographic and country weights using Stata's pweight option. We control for the nested structure of the data by using country-clustered standard errors. Similar results from a model replacing the macro-level variables with country dummies (Appendix Table 4) and a multi-level model (Appendix Table 5) are provided in the appendix.[11]

Analysis

We start our analysis by comparing nons-entrepreneurship between countries and across time. Figure 3 displays the share of nons-entrepreneurs in the total population of early stage entrepreneurs in each of the 17 countries in our dataset in both 2006 and 2012. As can be seen, there is quite some variation between countries and between years. In 2006, France had by far the greatest share of nons-entrepreneurs (about 17.6% of all early stage entrepreneurs).[12] Finland, Germany, Greece, Italy and Sweden had between 5% and 10% nons-entrepreneurs, while the rest of the countries ranged below

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[7] Eurostat, Unemployment rate by sex and age groups - quarterly average, % [une_rt_q]
[8] World Bank, GDP per capita (constant 2005 US$), http://data.worldbank.org/indicator/NY.GDP.PCAP.KD
[9] World Bank, GDP per capita growth (annual %), http://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG
[10] We use a logit instead of a probit model, because we assume the error terms to follow a standard logistic distribution. However, using a probit model instead yields highly similar results.
[11] However, a likelihood-ratio test demonstrates that a multi-level specification is not necessary in our case. It may also be flawed due to the low number of observations on level-2 and their non-random selection (see Möhring 2012 for the advantage of fixed effects models over multi-level approaches in such cases).
[12] This may be explained by the fact that already before the outbreak of the economic crisis, in France, a comparably high unemployment rate was mixed with unfavorable institutional conditions for business start-ups (Gohmann 2012) and low trust in own capabilities to start a business among French (Boissin et al. 2009).
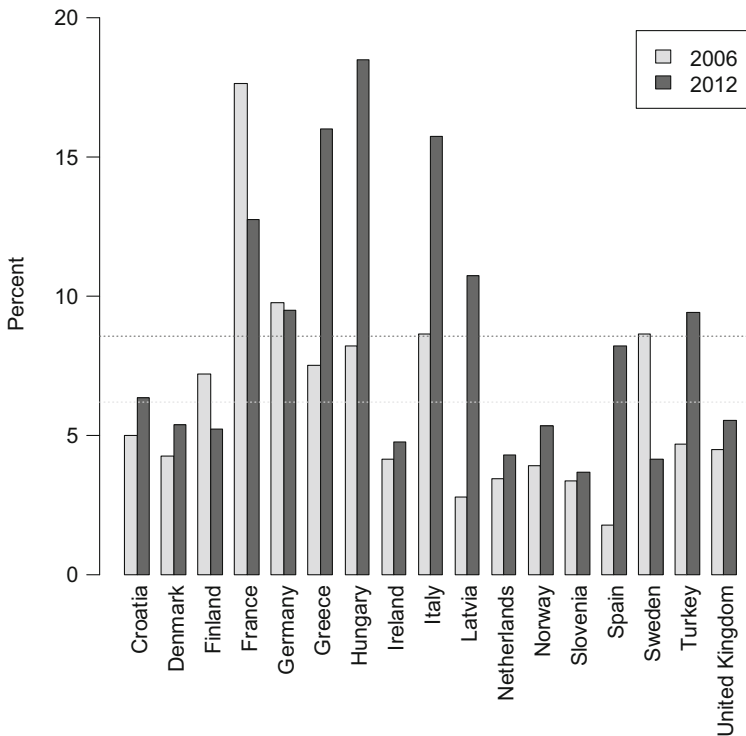
Fig. 3 Percent of nons-entrepreneurs among early stage entrepreneurs. Source: GEM data for 2006 and 2012; own calculations. Demographic weights applied. Dotted lines indicate averages over all countries for 2006 and 2012

5%. By 2012, the share of nons-entrepreneurs in most countries has risen considerably compared to 2006, with values above 15% in Greece, Hungary and Italy. The other countries mostly range between 5% and 10%; only Ireland, the Netherlands, Slovenia and Sweden display values just below 5%.

The figure illustrates the rising prominence of nons-entrepreneurship in most countries during the economic crisis, with on average 8.6% of the early stage entrepreneurs in a country neither believing in business opportunities nor in their own skills in 2012 (compared to a country average of 6.2% in 2006).[13] Furthermore, in many of the countries most affected by the crisis (Greece, Hungary, Italy and Spain) the rate of increase has been particularly high.

We now turn to the results of regressing nons-entrepreneurship on the individual and macro-level determinants for the 2006 and 2012 data. As can be seen from the presentation of the models in Table 1, *Necessity* has a positive, yet not statistically significant effect on nons-entrepreneurship in 2006. The coefficient of *Desirability* is

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[13] There are only three outliers to the general rule of rising nons-entrepreneurship: Sweden, Finland, and France. An explanation for the drop in the proportion of nons-entrepreneurs among population of early-stage entrepreneurs in these countries is offered by GEM national-level indicators of entrepreneurial activity, that point out an increase in aggregated opportunity perceptions (Sweden: from 46.1% in 2006 to 66.5% in 2012; Finland: from 49.8% in 2006 to 55.3% in 2012; France: from 20.8% in 2006 to 37.5% in 2012), just minor changes in aggregated skill perception (Sweden: from 41.9% in 2006 to 37.0% in 2012; Finland: from 36.5% in 2006 to 34.3% in 2012; France: from 33.3% in 2006 to 35.7% in 2012).

Table 1 Logistic regression of nons-entrepreneurship for 2006 and 2012

	(1) 2006		(2) 2012	
Individual-level Variables				
Gender (1 = female)	0.506[*]	(0.243)	−0.010	(0.175)
Age	−0.184[***]	(0.049)	−0.080	(0.056)
Age^2	0.002[***]	(0.001)	0.001	(0.001)
Education (1 = high)	−0.228	(0.170)	−0.512[**]	(0.171)
Desirability	−0.229	(0.259)	0.071	(0.230)
Risk tolerance (1 = high)	−0.845[**]	(0.305)	−0.690[**]	(0.262)
Desirability x Risk tolerance	0.109	(0.354)	−0.231	(0.226)
Necessity	0.444	(0.274)	0.709[***]	(0.185)
Business already started	−0.722[**]	(0.229)	−0.207	(0.230)
Macro-level Variables				
Unemployment rate	0.090	(0.054)	−0.000	(0.016)
GDP per capita / 1000	−0.003	(0.007)	−0.025[*]	(0.011)
GDP per capita growth	−0.104	(0.053)	−0.038	(0.027)
Business freedom	0.024[***]	(0.007)	0.031	(0.018)
Constant	−0.743	(1.242)	−2.040[*]	(1.177)
Observations	5099		3157	
McFadden's Pseudo R^2	0.076		0.067	

Standard errors in parentheses

[*] $p < 0.05$, [**] $p < 0.01$, [***] $p < 0.001$

Demographic weights applied; the variable Desirability is not available for two countries, Denmark and Sweden, in 2012. Thus, these two countries were omitted from the 2012 analysis. However, a separate model (not reported) without Desirability, but including the two countries provides similar results

not significant either. At the same time, and contrary to the original expectation, *Risk tolerance,* has a significant negative effect on becoming a nons-entrepreneur. This means that, contrary to the assumption, it is not the people with high risk tolerance who start a business despite seeing little potential in doing so. Instead, people with higher risk aversion are more likely to do so. In addition, we find that women are more likely to become nons-entrepreneurs than men. Age has a non-linear effect: all other things equal, for people aged 39 and less, the probability of nons-entrepreneurship is predicted to decline with increased age, while for people of 40 years or older, the probability of non-entrepreneurship increases the older they become. People who had already started their business were significantly less likely to be nons-entrepreneurs than nascent entrepreneurs. Concerning the country-level effects, *Business freedom* has a positive effect, indicating that the easier it is to start or to close a business, the more likely it is that people become entrepreneurs despite failing to believe in their skills or in good opportunities. Neither GDP nor GDP growth nor the unemployment rate seem to influence nons-entrepreneurship.

The results based on the 2012 data differ slightly from those for 2006 concerning the country-level effects (e.g. differences between countries became larger, potentially due

to differences in economic development) and differ considerably from those for 2006 in regard to the individual-level effects. Most importantly, *Necessity* turns out to have a significant and positive effect on nons-entrepreneurship. The size of the effect is illustrated in Fig. 4, displaying the average marginal effects of *Necessity* (cf. Williams 2012). As can be seen, the predicted probability of being a nons-entrepreneur rises from about 8% to about 14% once someone acts out of necessity. This corroborates our hypothesis that if people lack other choices on the labour market and turn to entrepreneurship out of necessity, they are more likely to become entrepreneurs who neither perceive that they have the necessary skills for running a business, nor that there are generally good opportunities for new businesses in their region. The fact that these relationships cannot be found to such an extent in the data for 2006 is in line with the hypothesis that nons-entrepreneurship among entrepreneurs is aggravated in times of economic crisis.

Gender and *Age* have no significant effect in 2012. Instead, we find that, in 2012, people with a low level of formal education are significantly more likely to become nons-entrepreneurs than people with higher education. Like in 2006, high *Risk tolerance* leads to a lower probability of nons-entrepreneurship, further undermining the original hypothesis that nons-entrepreneurs may be individuals who are simply not afraid to risk a potential business failure. On the contrary, they seem to be afraid of risk but nevertheless start a business, thus potentially acting out of desperation. At the same time, this further strengthens the argument that nons-entrepreneurs are necessity-driven and will even try to start a business if they are risk averse. As they have no other options on the labour market, trying to become self-employed is less risky for them than for individuals who are already in well paid employment, especially if they are simply aiming for solo-employment, thus creating a job for themselves but without high ex ante investments. Hence, even if they are risk averse, perceived necessity leads them to become nons-entrepreneurs.
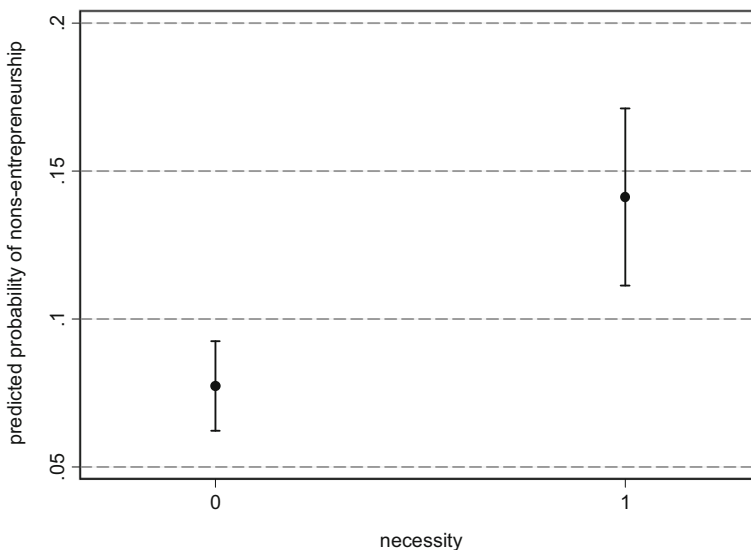
Fig. 4 Predicted probability of nons-entrepreneurship in 2012 depending on whether someone is motivated by necessity or not. Note: Average marginal effects (Williams 2012) based on model 2 in Table 1

However, as reflected in the rather low pseudo R^2, while necessity is a highly influential factor, it does not determine nons-entrepreneurship. Therefore, one should be careful not to equate necessity-entrepreneurship and nons-entrepreneurship. There are still individuals who start a business out of necessity but do believe in their skills and opportunities. And there are also individuals who believe neither in their skills nor opportunities, but do not turn to entrepreneurship out of necessity.

Although not completely robust across model specifications (compare the multilevel models in Appendix Table 5), our findings suggest that in different economic contexts, not only the proportion of nons-entrepreneurs but also the patterns vary. In the pre-crisis period, gender and age affect the probability of nons-entrepreneurship, while the level of education does not matter (cf. Verheul et al. 2010). However, during periods of economic downturn, gender and age are not significantly related to nons-entrepreneurship while the level of education matters, with nons-entrepreneurship being most widespread within the less educated workforce. Also, necessity only becomes a significant driver of nons-entrepreneurship in periods of economic downturn. In addition, while prior to crisis we saw a lower transition of nons-entrepreneurship to the next stage of business activity (from nascent to new), meaning that it existed mainly as a temporary activity in its early stage, in the downturn period, nons-entrepreneurs are more likely to carry on with their nons-endeavours, probably due to lack of other available options. Moreover, while business freedom normally enhances nons-entrepreneurship probably thanks to offering low barriers in and out temporary quick-fix self-employment attempts, in the context of economic crisis, its importance diminishes. This might indicate that no-opportunities and no-skills individuals under harsh economic conditions enter into nons-entrepreneurship irrespective of barriers for business-entry. On the other hand, the negative relationship between risk aversion and nons-entrepreneurship remains significant in both contexts, which further underlines the stable role of desperation in leading individuals to entrepreneurship despite lacking skills and seeing no opportunities.

Conclusion

Classical theories of entrepreneurship such as the Krueger-Brazeal model (Krueger and Brazeal 1994; Krueger et al. 2000) assume that individuals start their own business because they deem it both desirable and feasible, due to favourable business opportunities and a firm belief in their own capabilities and skills. In this paper, we argued that especially in light of the current economic crisis, these theories do not cover the entire spectrum of patterns leading individuals to enterprising endeavours and need to be expanded to be able to address the phenomenon of "nons-entrepreneurs" – individuals who try to start a business without the perception of opportunities and skills.

Based on data from the Global Entrepreneurship Monitor for 17 European countries in 2006 and 2012, we find that there is a considerable share of such individuals among early stage entrepreneurs. This share has increased since the outbreak of the crisis, suggesting that this phenomenon should not be ignored.

Drawing on the theory of planned behaviour, we propose an amendment to the Krueger-Brazeal model, which accounts for nons-entrepreneurship. Based on this

adapted model, we identify several factors that might lead to nons-entrepreneurship. Most importantly, we incorporate the distinction between necessity and opportunity driven entrepreneurship into the Krueger-Brazeal model, hypothesizing that "nons-entrepreneurs" are likely to be driven by the fact that they have no opportunities to (re-)enter the labour market other than being self-employed. Our empirical analysis supports this hypothesis. Individuals who are driven by necessity and individuals with a low level of formal education are more likely to become nons-entrepreneurs during periods of economic downturn, a finding that relates to earlier work by Deli (2011), who detected a positive correlation between unemployment rate and entry into self-employment among low-ability workers. Moreover, it is not a low risk aversion that leads them to start their own business without being convinced to succeed. Rather, they turn to entrepreneurship despite being afraid of failure (compare Verheul et al. 2010 on necessity entrepreneurship). We conclude that nons-entrepreneurs are in fact "desperate", without opportunities, skills, or better options.

However, our analysis also indicates that the phenomenon of nons-entrepreneurs is by far not fully explained by necessity. Future research should look more closely into the differences between nons-entrepreneurship and necessity entrepreneurship and search for further factors that might account for nons-entrepreneurship. This might not only help develop a better understanding of the phenomenon of nons-entrepreneurship, but entrepreneurship in general. Furthermore, while there is reason to believe that "nons-entrepreneurs" may be less successful and, as a result, less beneficial for the economy than "classical" opportunity driven entrepreneurs, this hypothesis still needs empirical testing.

Importantly, if the enterprises of nons-entrepreneurs are indeed less sustainable, entrepreneurship will lead to further disappointment and increased debt for such individuals while offering little more than a short-term break from unemployment. If true, recent labour market policies encouraging entrepreneurship should be rethought and adapted in order not to encourage nons-entrepreneurship. Still better, potential nons-entrepreneurs should be provided with the necessary skills (and belief in these skills) to set up and maintain a business and to break the cycle of unemployment and failure.

Our paper contributes to the body of knowledge on drivers and circumstances leading individuals to entrepreneurial activities by introducing the phenomenon of nons-entrepreneurship. Notwithstanding the fact that the research on determinants of entrepreneurial intentions and involvement in entrepreneurship has been extensive (Bosma 2013; Arin et al. 2014; Fayolle and Liñán, 2014; Thurik 2015), and incorporates both opportunity and necessity entrepreneurship (e.g. Hechavarria and Reynolds, 2009; Block and Wagner 2010; Deli 2011; Verheul et al. 2010; Fuentelsaz et al., 2015), none of these studies have so far applied a similar perspective to ours. Therefore, we hope that this analysis will inspire future research on nons-entrepreneurs in order to fully uncover the determinants behind this phenomenon.

Appendix

Table 2 Perception of own skills and perception of opportunities to start a business

2006				2012			
	Perceived Opportunities				Perceived Opportunities		
	No	Yes	Total		No	Yes	Total
Perceived Skills				Perceived Skills			
No	323	276	599	No	320	277	597
Yes	2487	2559	5046	Yes	1696	1413	3109
Total	2810	2835	5645	Total	2016	1690	3706

Demographic weights applied

Measurement of variables:

Nons-entrepreneurship: 1 = yes (early-stage entrepreneur neither perceives him or herself to have the knowledge, skill and experience required for starting a business, nor thinks that there are currently good opportunities for starting a business), 0 = no (early-stage entrepreneur perceives him or herself either to have the knowledge, skill and experience required for starting a business, or thinks that there are currently good opportunities for starting a business, or both); Source: own calculations based on GEM 2006 and GEM 2012 [teayy – early stage entrepreneurship yes/no, suskill – skill perception yes/no, opport – opportunity perception yes/no].

Gender: 1 = female, 0 = male; Source: GEM 2006 and GEM 2012 [gender].

Age: in years; Source: GEM 2006 and GEM 2012 [age].

Education: 1 = high (post secondary or higher), 0 = low (secondary or lower); Source: adapted from GEM 2006 and GEM 2012 [uneduc].

Desirability: 1 = agreement with the statement "In your country, most people consider starting a new business a desirable career choice", 0 = disagreement with this statement; Source: GEM 2006 and GEM 2012 [nbgoodc].

Risk tolerance: 1 = high risk tolerance, answer "no" to the question "Would fear of failure prevent you from starting a business?", 0 = answer "yes"; Source: GEM 2006 and GEM 2012 [fearfail].

Necessity: 1 = becomes an entrepreneur out of necessity, 0 = out of opportunity; Source: GEM 2006 and GEM 2012 [teayynec].

Business already started: 1 = Manages and owns a business that is up to 42 months old, 0 = does not yet manage or own a business; Source: GEM 2006 and GEM 2012 [babybuso].

Unemployment rate: Unemployment rate by sex and age groups in % - quarterly average, 2nd quarter of 2006 and 2012; Source: Eurostat [une_rt_q].

GDP per capita / 1000: GDP per capita divided through 1000 (constant 2005 US$) in 2006 and 2012; Source: Worldbank, http://data.worldbank.org/indicator/NY.GDP.PCAP.KD

GDP per capita growth: GDP per capita growth (annual %) in 2006 and 2012; Source: Worldbank, http://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG

Business freedom: index of economic freedom (IEF) on a score from 1 to 100; Source: Holmes et al., 2008.

Table 3 Descriptive statistics of variables

	2006				2012			
	mean	sd	min	max	mean	sd	min	max
Nons-entrepreneurship	0.06	-	0	1	0.09	-	0	1
Gender (1 = female)	0.32	-	0	1	0.32	-	0	1
Age	37.71	11.02	18	64	38.24	11.29	18	64
Education (1 = high)	0.45	-	0	1	0.50	-	0	1
Desirability	0.62	-	0	1	0.55	-	0	1
Risk tolerance (1 = high)	0.78	-	0	1	0.71	-	0	1
Necessity	0.18	-	0	1	0.21	-	0	1
Business already started	0.43	-	0	1	0.41	-	0	1
Unemployment rate	7.27	2.42	3.7	12.2	11.06	5.64	3.1	24.5
GDP per capita / 1000	32.13	18.10	7.52	66.74	28.86	17.21	8.43	65.62
GDP per capita growth	4.76	2.35	2.01	12.20	0.00	2.65	−6.37	5.00
Business freedom	78.72	12.32	53.80	95.30	81.94	9.82	63.00	98.40

Demographic weights applied

Table 4 Logistic regression of nons-entrepreneurship for 2006 and 2012 including country fixed effects

	(1) 2006		(2) 2012	
Gender (1 = female)	0.537[*]	(0.233)	−0.027	(0.172)
Age	−0.198[**]	(0.061)	−0.085	(0.049)
Age^2	0.002[**]	(0.001)	0.001	(0.001)
Education (1 = high)	−0.323	(0.259)	−0.494[**]	(0.173)
Desirability	−0.202	(0.384)	0.061	(0.258)
Risk tolerance (1 = high)	−0.818[*]	(0.361)	−0.604[*]	(0.253)
Desirability x Risk tolerance	0.112	(0.473)	−0.218	(0.334)
Necessity	0.368	(0.258)	0.688[***]	(0.199)
Business already started	−0.603[*]	(0.237)	−0.206	(0.166)
Croatia [(a)]	-ref.-		-ref.-	
Denmark	0.294	(0.509)	na	
Finland	0.784	(0.593)	0.160	(0.552)
France	1.514[**]	(0.551)	1.096[*]	(0.494)
Germany	0.531	(0.548)	0.974	(0.685)
Greece	0.465	(0.563)	1.230[**]	(0.450)
Hungary	0.499	(0.558)	1.318[**]	(0.413)
Ireland	0.354	(0.610)	−0.063	(0.548)
Italy	0.605	(0.676)	0.964[*]	(0.486)
Latvia	−0.306	(0.738)	0.724	(0.422)
Netherlands	−0.070	(0.611)	0.030	(0.493)
Norway	0.055	(0.738)	0.290	(0.537)
Slovenia	0.088	(0.658)	−0.021	(0.632)

Table 4 (continued)

	(1) 2006		(2) 2012	
Spain	−0.745	(0.447)	0.520	(0.392)
Sweden	0.905	(0.635)	na	
Turkey	0.112	(0.614)	0.721	(0.413)
United Kingdom	0.262	(0.442)	0.330	(0.636)
Constant	1.141	(1.259)	−0.781	(1.047)
Observations	5099		3157	
McFadden's Pseudo R^2	0.094		0.085	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Demographic weights are applied. Age^2 refers to the squared term of the variable Age. (a) Croatia forms the reference category of the country dummies and is therefore omitted from the models to avoid collinearity. The variable *Desirability* is not available for two countries, Denmark and Sweden, in 2012. Thus, these two countries were omitted from the 2012 analysis. However, a separate model (not reported) without *Desirability*, but including the two countries provides similar results

Table 5 Multi-level logistic regression of nons-entrepreneurship in 2006 and 2012

	(1) 2006		(2) 2012	
Gender (1 = female)	0.513*	(0.218)	0.106	(0.160)
Age	−0.180**	(0.059)	−0.107*	(0.045)
Age^2	0.002**	(0.001)	0.001*	(0.001)
Education (1 = high)	−0.252	(0.233)	−0.458**	(0.159)
Desirability	−0.425	(0.384)	−0.011	(0.228)
Risk tolerance (1 = high)	−0.914**	(0.354)	−0.748**	(0.230)
Desirability x Risk tolerance	0.417	(0.465)	−0.052	(0.307)
Necessity	0.641**	(0.247)	0.648***	(0.164)
Business already started	−0.544*	(0.230)	−0.083	(0.155)
Unemployment rate	0.075	(0.063)	0.020	(0.019)
GDP per capita /1000	−0.004	(0.014)	−0.019	(0.011)
GDP per capita growth	−0.078	(0.075)	−0.022	(0.037)
Business freedom	0.022	(0.013)	0.019	(0.018)
Constant	−0.631	(1.678)	−1.058	(1.552)
Random intercepts (Countries)				
Standard Deviation	9.35e-07	(.337)	0.197	(0.131)
Observations	1820		2234	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Using multilevel models for GEM data is problematic, as no weights can be applied and sample sizes vary greatly between countries. E.g. Spain in 2006 and 2012 and UK in 2006 had 10 times the sample size of the other countries. Instead of weighting the data, the mean number of observations of the other countries was randomly drawn from the data of the countries with overlarge sample sizes to ensure that observations from these countries were not driving the results

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behaviour and Human Decision Processes, 50*, 179–211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Upper Saddle River: Prentice-Hall International.

Aldrich, H. E., & Kim, P. H. (2007). A life course perspective on occupational inheritance: Self-employed parents and their children. In M. Ruef & M. Lounsbury (Eds.), *Research in the Sociology of Organizations Volume 25 - The Sociology of Entrepreneurship* (pp.33–82). Bingley: Emerald.

Andersson, P., & Wadensjö, E. (2007). Do the unemployed become successful entrepreneurs? *International Journal of Manpower, 28*(7), 604–626.

Arin, K. P., Huang, V. Z., Minniti, M., Nandialath, A. M., & Reich, O. (2014). Revisiting the Determinants of Entrepreneurship A Bayesian Approach. *Journal of Management, 41*(2), 607–631.

Åstebro, T., & Bernhardt, I. (2003). Start-up financing, owner characteristics, and survival. *Journal of Economics and Business, 55*(4), 303–319.

Audretsch, D. B., Carree, M., Van Stel, A., & Thurik, R. (2005). *Does self-Emplomyment reduce unemployment? SCALES-paper N200504*. Zoetermeer: Scientific Analysis of Entrepreneurship and SMEs.

Ayyagari, M., Beck, T., & Demirguc-Kunt, A. (2007). Small and medium enterprises across the globe. *Small Business Economics, 29*(4), 415–434.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117–148.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Baumol, W. J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Political Economy, 98*(5), 893–921.

Baumol, W. J., & Strom, R. J. (2007). Entrepreneurship and economic growth. *Strategic Entrepreneurship Journal, 1*(3-4), 233–237.

Begley, T. M., Tan, W.-l., & Schoch, H. (2005). Politico-economic factors associated with interest in starting a business: A multi-country study. *Entrepreneurship Theory and Practice, 29*(1), 35–55.

Bjørnskov, C., & Foss, N. J. (2008). Economic freedom and entrepreneurial activity: Some cross-country evidence. *Public Choice, 134*(3/4), 307–328.

Blanchflower, D. (2004). Self-employment: More may not be better. *Swedish Economic Policy Review, 11*(2), 15–74.

Block, J., & Sandner, P. (2009). *Necessity and opportunity entrepreneurs and their duration in self-employment: Evidence from German micro data* (p. 191). DWI Berlin: SOEPpapers on Multidisciplinary Panel Data Research.

Block, J., & Wagner, M. (2010). Necessity and opportunity entrepreneurs in Germany: Characteristics and earnings differentials. *Schmalenbach Business Review, 62*(April), 21–47.

Boettke, P. J., & Coyne, C. J. (2003). Entrepreneurship and development: Cause or consequence? *Austrian Economics and Entrepreneurial Studies. Advances in Austrian Economics, 6*, 67–87.

Boissin, J.-P., Branchet, B., Emin, S., & Herbert, J. (2009). Students and entrepreneurship: A comparative study of France and the United States. *Journal of Small Business & Entrepreneurship, 22*(2), 101–122.

Borozan, D., & Pfeifer, S. (2014). Exploring entrepreneurs' motivation: Comparison of Croatia, European post-socialist and developed countries. *The Journal of Entrepreneurship, 23*(2), 263–287.

Bosma, N., Hessels J., Schutjens V., van Praag M., & Verheul, I. (2011). Entrepreneurship and role models. *Journal of Economic Psychology, 33*(2), 410–424.

Bosma, N. (2013). The Global Entrepreneurship Monitor (GEM) and Its Impact on Entrepreneurship Research. *Foundations and Trends® in Entrepreneurship, 9*(2), 143–248.

Boyd, N. G., & Vozikis, G. S. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theorie and Practice, 18*(1), 63–77.

Brandstätter, H. (2011). Personality aspects of entrepreneurship: A look at five meta-analyses. *Personality and Individual Differences, 51*(3), 222–230.

Brockhaus, R. (1980). Risk taking propensity of entrepreneurs. *The Academy of Management Journal, 23*(3), 509–520.

Busenitz, L. W., Gómez, C., & Spencer, J. W. (2000). Country institutional profiles: Unlocking entrepreneurial phenomena. *The Academy of Management Journal, 43*(5), 994–1003.

Caliendo, M., & Kritikos, A. S. (2010). Start-ups by the unemployed: Characteristics, survival and direct employment effects. *Small Business Economics, 35*(1), 71–92.

Caliendo, M., Fossen, F. M., & Kritikos, A. S. (2009). Risk attitudes of nascent entrepreneurs: New evidence from an experimentally-validated survey. *Small Business Economics, 32*(2), 153–167.

Caliendo, M., Hogenacker J., Künn S., Wießner F. (2015). Subsidized start-ups out of unemployment: A comparison to regular business start-ups. *IZA Discussion Paper 8817*. Bonn: Institute for the Study of Labor.

Carrasco, R. (1999). Transitions to and from self-employment in Spain: An empirical analysis. *Oxford Bulletin of Economics and Statistics, 61*(3), 315–341.

Cowling, M., & Mitchell, P. (1997). The evolution of U.K. self-emplyoment: A study of government policy and the role of the macroeconomy. *The Manchester School, 65*(4), 427–442.

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing, 18*(3), 301–331.

Dawson, C., & Henley, A. (2012). "Push" versus "pull" entrepreneurship: An ambiguous distinction. *International Journal of Entrepreneurial Behaviour & Reseach, 18*(6), 697–719.

Deli, F. (2011). Opportunity and necessity entrepreneurship: Local unemployment and the small firm effect. *Journal of Management Policy and Practice, 12*(1984), 38–57.

Dunn, T., & Holtz-Eakin, D. (2000). Financial capital, human capita, and the transition to self-employment: Evidence from intergenerational links. *Journal of Labor Economics, 18*(2), 282–305.

Evans, D., & Leighton, L. (1989). Some empirical aspects of entrepreneurship. *American Economic Review, 79*(3), 519–535.

Fairlie, R. (2013). Entrepreneurship, economic conditions, and the great recession. *Journal of Economics and Management Strategy, 22*(2), 207–231.

Fayolle, A., & Liñán, F. (2014). The future of research on entrepreneurial intentions. *Journal of Business Research, 67*(5), 663–666.

Ferreira, J. J., Raposo, M. L., Rodrigues, R. G., Dinis, A., & Paço, A. D. (2012). A model of entrepreneurial intention: An application of the psychological and behavioral approaches. *Journal of Small Business and Enterprise Development, 19*, 424–440.

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behaviour: An introduction to theory and research*. Massachusetts: Addison-Wesley publishing.

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behaviour - the reasoned action approach*. New York: Taylor & Francis.

Forbes, D. P. (2005). Are some entrepreneurs more overconfident than others? *Journal of Business Venturing, 20*(5), 623–640.

Fuentelsaz, L., González, C., Maícas, J. P., & Montero, J. (2015). How different formal institutions affect opportunity and necessity entrepreneurship. *BRQ Business Research Quarterly, 18*(4), 246–258.

Gartner, W. B. (1985). A conceptual framework for describing the phenomenon of new venture creation. *The Academy of Management Review, 10*(4), 696–706.

Gartner, W. B. (1989). "Who is an entrepreneur?" Is the wrong question. *Entrepreneurship Theory and Practice, 13*(4), 47–68.

Gohmann, S. F. (2012). Institutions, latent entrepreneurship, and self-employment: An international comparison. *Entrepreneurship Theory and Practice, 36*(2), 295–321.

Guerrero, M., Rialp, J., & Urbano, D. (2008). The impact of desirability and feasibility on entrepreneurial intentions: A structural equation model. *International Entrepreneurship and Management Journal, 4*(1), 35–50.

Haas, M. (2013). *Necessity Entrepreneurship: Individual , Environmental and Public Policy-Related Factors Influencing the Process of Opportunity Exploitation under Unfavorable Circumstances*. Dissertation Nr. 5830, École Polychnique Fédérale de Lausanne.

Hechavarria, D. M., & Reynolds, P. D. (2009). Cultural norms & business start-ups: the impact of national values on opportunity and necessity entrepreneurs. *International Entrepreneurship and Management Journal, 5*(4), 417–437.

Hinz, T., & Jungbauer-Gans, M. (1999). Starting a business after unemployment: Characteristics and chances of success (empirical evidence from a regional German labour market). *Entrepreneurship and Regional Development, 11*(4), 317–333.

Holienka, M., Mrva, M., & Marcin, P. (2013). Role of family entrepreurial role models in determining students' preferences towards entrepreneurship. In Gómez Chova, L., López Martínez, A., & Candel Torres, I. (Eds.), *ICERI2013 Proceedings* (pp. 3722–3730). Seville: International Association of Technology, Education and Development.

Holmes, R.M., Ireland, R.D., & Holcomb, T.R. (2008). Entrepreneurial risk and loss aversion in the evaluation of venture formation opportunities. *Frontiers of Entrepreneurship Research, 28*(17), Article 3.

Kautonen, T., van Gelderen, M., & Tornikoski, E. T. (2013). Predicting entrepreneurial behaviour: A test of the theory of planned behaviour. *Applied Economics, 45*(6), 697–707.

Kautonen, T., van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice, 39*(3), 655–674.

Kirkwood, J. (2009). Motivational factors in a push-pull theory of entrepreneurship. *Gender in Management: An International Journal, 24*(5), 346–364.

Koellinger, P., Minniti, M., & Schade, C. (2007). "I think I can, I think I can": Overconfidence and entrepreneurial behavior. *Journal of Economic Psychology, 28*(4), 502–527.

Kreft, S. F., & Sobel, R. (2005). Public policy, entrepreneurship, and economic freedom. *Cato Journal, 25*(3), 595–616.

Krueger, N. F. (2017). Is research on entrepreneurial intentions growing? Or…just getting bigger. In M. Brännback & A. L. Carsrud (Eds.), *Revisiting the entrepreneurial mind: Inside the black box: An expanded edition* (pp. 35–40). Cham: Springer international publishing.

Krueger, N. F., & Brazeal, D. V. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship Theory and Practice, 18*(3), 91-104.

Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing, 15*(5–6), 411–432.

Langowitz, N., & Minniti, M. (2007). The entrepreneurial propensity of women. *Entrepreneurship Theory and Practice, 31*(3), 341–364.

Liñán, F. (2008). Skill and value perceptions: How do they affect entrepreneurial intentions? *International Entrepreneurship and Management Journal, 4*(3), 257–272.

Liñán, F., Fernández-Serrano, J., & Romero, I. (2012). Necessity and opportunity entrepreneurship: The mediating effect of culture. *Revista de Economía Mundial, 22*, 21–47.

Lindquist, M. J., Sol, J., & Praag, M. V. (2015). Why do entrepreneurial parents have entrepreneurial children? *Journal of Labor Economics, 33*(2), 269–296.

Locke, E. A., & Baum, R. (2007). Entrepreneurial Motivation. In R. Baum, M. Frese, & R. Baron (Eds.), *The psychology of entrepreneurship*. New York: Psychology Press.

Long, J. S., & Freese, J. (2006). *Regression models for categorical dependent variables using Stata* (2nd ed.). College Station, Tex: Stata Press.

Lortie, J., & Castogiovanni, G. (2015). The theory of planned behavior in entrepreneurship research: What we know and future directions. *International Entrepreneurship and Management Journal, 11*(4), 935–957.

Lucas, W., Cooper S., MacFarlane S. (2008). Exploring necessity-driven entrepreneurship in a peripheral economy. *Paper presented at 31st ISBA Conference, Belfast, Ireland*, 1/11/08.

Lüthje, C., & Franke, N. (2003). The 'making' of an entrepreneur: Testing a model of entrepreneurial intent among engineering students at MIT. *R&D Management, 33*(2), 135–147.

Meager, N. (1992). Does unemployment lead to self-employment? *Small Business Economics, 4*(2), 87–103.

Möhring, K. (2012). The fixed effect as an alternative to multilevel analysis for cross-national analyses. *GK SOCLIFE Working Papers Series*, 16/2012.

Mungai, E., & Velamuri, S. R. (2011). Parental entrepreneurial role model influence on male offspring: Is it always positive and when does it occur? *Entrepreneurship Theory and Practice, 35*(2), 337–357.

Newman, K. S. (1999). *No shame in my game: The working poor in the inner city*. New York: Knopf and the Russell Sage Foundation.

Obschonka, M., Silbereisen, R., & Schmitt-Rodermund, E. (2011). Successful entrepreneurship as developmental outcome: A path model from a lifespan perspective of human development. *European Psychologist, 16*(3), 174–186.

Ozaralli, N., & Rivenburgh, N. K. (2016). Entrepreneurial intention: antecedents to entrepreneurial behavior in the U.S.A. and Turkey. *Journal of Global Entrepreneurship Research, 6*(1), 3.

Parker, S. C. (2004). *The economics of self-employment and entrepreneurship*. Cambridge: Cambridge University Press.

Pfeiffer, F., & Reize, F. (2000). Business start-ups by the unemployed — An econometric analysis based on firm data. *Labour Economics, 7*(5), 629–663.

Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology, 16*(4), 353–385.

Reynolds, P., Bygrave, W., Autio, E., Cox, L., & Hay, M. (2002): *Global entrepreneurship monitor 2002 executive report.* London: Babson College, London Business School.

Rocha, V. C. (2012). The entrepreneur in economic theory: From an invisible man toward a new research field. In *FEP working paper 459.* School of Economics and Management: University of Porto.

Sagie, A., & Elizur, D. (1999). Achievement motive and entrepreneurial orientation: A structural analysis. *Journal of Organizational Behavior, 20*(3), 375–387.

Sarasvathy, S. D., Dew, N., Velamuri, S. R., & Venkataraman, S. (2010). Three views of entrepreneurial opportunity. In Z. Acs & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research* (pp. 77–96). New York: Springer.

Scherer, R. F., Adams, J. S., Carley, S. S., & Wiebe, F. A. (1989). Role model performance effects on development of entrepreneurial career preference. *Entrepreneurship Theorie and Practice, 13*(3), 53–71.

Schlaegel, C., & Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test and integration of competing models. *Entrepreneurship Theory and Practice, 38*(2), 291–332.

Schmitt-Rodermund, E. (2004). Pathways to successful entrepreneurship: Parenting, personality, early entrepreneurial competence, and interests. *Journal of Vocational Behavior, 65*(3), 498–518.

Schumpeter, J. A. (1947). The Creative Response in Economic History. *The Journal of Economic History, 7*(2), 149–159.

Shane, S., Locke, E. A., & Collins, C. J. (2003). Entrepreneurial motivation. *Human Resource Management Review, 13*(2), 257–279.

Sheehan, M., & Mc Namara, A. (2015). *Business Start-ups & Youth Self-Employment a Policy Literature Review Synthesis Report.* Brighton: STYLE Working Paper. University of Brighton.

Smallbone, D., & Welter, F. (2004). *Entrepreneurship in transition economies: Necessity or opportunity driven.* USA: Babson College-Kaufmann Foundation, Babson College Accessed 9 Nov 2010.

Smallbone, D., & Welter, F. (2012). Entrepreneurship and institutional change in transition economies: The commonwealth of independent states, central and Eastern Europe and China compared. *Entrepreneurship and Regional Development, 24*(3–4), 215–233.

Sobel, R. S. (2008). Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing, 23*(6), 641–655.

Stenholm, P., Acs, Z. J., & Wuebker, R. (2013). Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. *Journal of Business Venturing, 28*(1), 176–193.

Thompson, P. (2011). Necessity and Opportunity Entrepreneurs through the Business Cycle. Working Paper 1102. Florida International University, Department of Economics. *Paper presented at the CIRPÉE-Ivey Conference on Macroeconomics and Entrepreneurship.* Montreal, May 6-7, 2011.

Thurik, A. R., Carree, M. A., van Stel, A., & Audretsch, D. B. (2008). Does self-employment reduce unemployment? *Journal of Business Venturing, 23*(6), 673–686.

Thurik, A. R. (2015). Determinants of entrepreneurship. In D. B. Audretsch, C. S. Hayter, & A. N. Link (Eds.), *Concise Guide to Entrepreneurship. Technology and Innovation* (pp. 28–38). Cheltenham: Edward Elgar Publishing Limited.

Tucker, I. (1988). Entrepreneurs and public-sector employees: The role of achievement motivation and risk in occupational choice. *The Journal of Economic Education, 19*(3), 259–268.

Van Auken, H., Fry, F. L., & Stephens, P. (2006). The influence of role models on entrepreneurial intentions. *Journal of Developmental Entrepreneurship, 11*(2), 157–167.

Veciana, J. M. (2007). Entrepreneurship as a scientific research programme. In Á. Cuervo, D. Ribeiro, & S. Roig (Eds.), *Entrepreneurship concepts, Theory and perspective* (pp. 23–71). Heidelberg: Springer.

Veciana, J. M., Aponte, M., & Urbano, D. (2005). University students' attitudes towards entrepreneurship: A two countries comparison. *The International Entrepreneurship and Management Journal, 1*(2), 165–182.

Verheul, I., Thurik, R., Hessels, J., & van der Zwan, P. (2010). Factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs. *EIM Research Reports H, 201011*(March), 1–24.

Williams, C. C. (2008). Beyond necessity-driven versus opportunity-driven entrepreneurship a study of informal entrepreneurs in England, Russia and Ukraine. *Entrepreneurship and Innovation, 9*(3), 157–165.

Williams, R. (2012). Using the margins command to estimate and interpret adjusted predictions and marginal effects. *The Stata Journal, 12*(2), 308–331.

Zali, M. R., Faghih, N., Ghotbi, S., & Rajaie, S. (2013). The effect of necessity and opportunity driven entrepreneurship on business growth. *International Research Journal of Applied and Basic Sciences, 7*(2), 100–108.

Zhang, Y., Duysters, G., & Cloodt, M. (2014). The role of entrepreneurship education as a predictor of university students' entrepreneurial intention. *International Entrepreneurship and Management Journal, 10*(3), 623–641.