Abstract

Research on necessity entrepreneurship has generated important insights, yet it views necessity entrepreneurs in developed countries as one encompassing group of unemployed individuals - ignoring that the level of need is not uniform but instead increases with time spent in unemployment. We begin to unpack the role of unemployment duration in necessity entrepreneurship by asking how it affects one of the most fundamental decisions in start-ups: 'what business should I be in?' Analyzing primary data on 576 necessity entrepreneurs combined with three secondary data sets, we find that unemployment duration affects whether ventures are launched in "home" or in external industries, and moderates the extent to which founders' industry experience and the attractiveness of external opportunities relative to those in the "home" industry shape industry choice.
Necessity Entrepreneurship and Industry Choice in New Firm Creation

ABSTRACT

Research on necessity entrepreneurship has generated important insights, yet it views necessity entrepreneurs in developed countries as one encompassing group of unemployed individuals – ignoring that the level of need is not uniform but instead increases with time spent in unemployment. We begin to unpack the role of unemployment duration in necessity entrepreneurship by asking how it affects one of the most fundamental decisions in start-ups: ‘what business should I be in?’ Analyzing primary data on 576 necessity entrepreneurs combined with three secondary data sets, we find that unemployment duration affects whether ventures are launched in “home” or in external industries, and moderates the extent to which founders’ industry experience and the attractiveness of external opportunities relative to those in the “home” industry shape industry choice.
INTRODUCTION

Necessity entrepreneurs – individuals who create new firms because they find “themselves with no other options for work than self-employment” (Acs, 2006: 98) – represent a substantial proportion of all entrepreneurial activity around the world. Whereas necessity entrepreneurship in developing countries accounts for more than half of all entrepreneurial activity, the phenomenon is also highly prevalent in developed countries—where necessity entrepreneurs come from the ranks of the unemployed and account for roughly fifteen percent of all new firm creation in North America, and more than twenty percent of such activity in Europe (Global Entrepreneurship Monitor, 2017; Vivarelli, 2013). Although a general appreciation of the importance of the phenomenon and its outcomes is evident in the existing literature (Caliendo and Kritikos, 2010; Santarelli and Vivarelli, 2007), a closer inspection of this body of work indicates that necessity entrepreneurship has mostly been studied in the developing world (Block and Wagner, 2010; Brewer and Gibson, 2014).¹ It would, however, be important to improve our knowledge of necessity entrepreneurship in the latter context, because findings in this vein would help scholars to better understand the boundary conditions of existing theoretical insights, and would allow a clear comparison with the vast literature on opportunity entrepreneurship.

In this regard, it is critical to note that the current framing of necessity entrepreneurship in developed countries tends to lump necessity entrepreneurs into one encompassing group of unemployed individuals (e.g., Global Entrepreneurship Monitor, 2017; ILO, 2012). Yet, this framing ignores that the level of need will increase the longer an individual is unemployed. Arguably, at the very beginning of an unemployment spell, necessity entrepreneurs may not be

¹ As a phenomenon, necessity entrepreneurship is encountered across the globe, and its antecedents, contextual influences and outcomes differ depending on whether one focuses on developed or developing countries (Global Entrepreneurship Monitor, 2017). Most of the research on necessity entrepreneurship so far focuses on bottom-of-the-pyramid individuals (e.g., Brewer and Gibson, 2014) who tend to create firms simply to survive.
too different from employee entrepreneurs (Agarwal, Gambardella and Olson, 2016; Agarwal, Echambadi, Franco and Sarkar, 2004; Campbell, Ganco, Franco and Agarwal, 2012; Gambardella, Ganco and Honoré, 2014; Ganco, 2013). Yet, as unemployment spells increase in length, individuals will experience greater levels of need: not only will they feel increasingly distressed as their unemployment deprives them of key psychological needs that employment fulfills (Eisenberg and Lazarsfeld, 1938; Fryer, 1997; Jahoda, 1982; Murphy and Athanasou, 1999; Paul and Moser, 2009), but they will also be pressured by the depreciation of their financial, human and social capital (Brief et al., 1995; Caliendo and Kritikos, 2010; Evans and Leighton, 1989, 1990; Storey, 1991). Hence, an important implication is that, when setting up their firms, necessity entrepreneurs who are short-term unemployed will likely behave in ways similar to opportunity entrepreneurs, whereas those who are long-term unemployed will behave in considerably different ways (Boyce, Wood and Daly, 2015). Thus, by investigating the duration of an individual’s unemployment spell (i.e., short-, medium- and long-term) and its effect on new firm creation, one will not only be able to bring much needed nuance into our understanding of necessity entrepreneurship, but will also advance theory that reconciles disparate predictions obtained from work on opportunity entrepreneurship on one hand, and from employment research on increasing need levels and ensuing behavioral changes of the unemployed on the other hand.

In order to demonstrate our claims regarding effects of unemployment duration on new venture creation, in this paper we turn to one of the most fundamental strategic decisions that entrepreneurs face when setting up their firms, that is, ‘what business should I be in?’ (Abell, 1980; Hofer and Schendel, 1978). In this regard, theory derived from opportunity entrepreneurship tells us that entrepreneurs typically launch their businesses in the industry in
which they have gathered their experience (their “home” industry), not least because of the considerable benefits that industry experience can provide in new firm creation (Cooper et al., 1994; Dencker and Gruber, 2015; Helfat and Lieberman, 2002). Case in point, research on employee entrepreneurship (Agarwal et al., 2004; Agarwal et al., 2016) defines the phenomenon as “the intra-industry founding of a new venture by an individual who previously worked for an incumbent firm” (Ganco, 2013: 666). However, drawing on the general arguments from employment research presented in the preceding paragraph, one may expect that the longer the unemployment spell of necessity entrepreneurs, the more they will differ in their firm-related behaviors and actions from opportunity entrepreneurs, even when it comes to fundamental decisions such as industry choice in new firm creation. That is, as necessity entrepreneurs face depreciating human and social capital and a growing need to generate an income, they may increasingly be tempted to leave their industry experience behind and consider setting up their businesses in other industry domains, particularly if these external industries offer more fertile ground than their home industries do (Shane, 2004). In effect, the consideration of other industry domains (the “opportunity landscape”) could be especially pertinent for necessity entrepreneurs, as they tend to be located in underperforming industries.²

In the following, we draw on strategy, entrepreneurship and employment research to develop three hypotheses on how the duration of unemployment affects the founder’s industry-choice decision, taking into account the founder’s industry experience and the relative

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² Hence, by asking how unemployment duration affects the fundamental strategic decision in which industry the new business will be created, we can also bring to the forefront the notion of the opportunity landscape – a notion that, despite its importance, is surprisingly little studied (McMullen and Shepherd, 2006), arguably due to the aforementioned focus on home industry venturing (Agarwal et al., 2004; Campbell, Kryscynski and Olson, 2017; Freeman, 1986; Ganco, 2013; Klepper and Sleeper, 2005) and to a more general lack of research on crucial pre-launch choices in new firm creation (Fern et al., 2012).
attractiveness of the opportunity landscape, that is, the attractiveness of external industries relative to the founder’s home industry.

We test our predictions by analyzing a unique dataset of 576 individuals who transitioned from unemployment to entrepreneurship in Greece. We combine the primary data with secondary data on industry-specific characteristics obtained from three third-party sources, that is, the Greek Statistical Office, the country’s Revenue Authority, and the database on skill fungibility from Neffke and Henning (2013). This research context lends itself well to a study of necessity entrepreneurship, since Greece was hit extremely hard by the European economic crisis: for the period we study empirically (2008-2013), its GDP decreased by 25 percent, with the unemployment rate being, on average, 17 percent of the labor force during this time period (Eurostat, 2015a). From an econometric perspective, this research context affords the possibility to observe substantial variation in our variables of interest. For instance, the ventures in our sample were created in many different industries, and there are key differences in length of unemployment spells, indicating critical variance in the degree to which the individuals that we study are necessity entrepreneurs.

HYPOTHESES DEVELOPMENT:
UNEMPLOYMENT DURATION AND INDUSTRY CHOICE IN NECESSITY ENTREPRENEURSHIP

Drawing on general accounts of how an increasing unemployment duration can give rise to different ways of thinking, behaving and acting (Boyce et al., 2015), the primary argument put forward in this paper is that individual-level differences in unemployment duration will affect organizational-level decisions and, in particular, one of the most important strategic decisions taken by entrepreneurs, namely: ‘what business should I be in?’ (Abell, 1980; Hofer and Schendel, 1978). As prior work indicates, the industry in which a new business is located not
only defines a fundamental feature of the organization and affects venture creation in a path-dependent manner, but it also shapes its performance potential (Boeker, 1989; Gruber, MacMillan and Thompson, 2008; McDougall et al., 1994). In effect, because a venture’s industry defines the economic setting in which it strives to become successful, it affects in key ways whether or not the new firm is able to flourish (Chrisman, Bauerschmidt, and Hofer, 1998). For instance, empirical evidence presented in Shane (2004) shows that industries diverge significantly in terms of their attractiveness for new firm creation, with some offering more fertile ground than others. These observations from entrepreneurship research mirror the longstanding discourse in strategy pointing to the importance of industry effects in shaping firm performance outcomes (Bain, 1959; Porter, 1985; Sohl, Vroom and Fitza, in press). For instance, work by McGahan and Porter (1997: 29) suggests that industry directly accounts for 36 percent of explained variation in business-specific profits, and that “industry effects are more persistent over time than business-specific or corporate-parent effects.”

Yet, although the industry setting in which a new firm is created has a fundamental effect on the emerging organization and its future performance, the notion that nascent entrepreneurs consider various industry settings (opportunities) prior to deciding which business they should be in (Abell, 1980; Hofer and Schendel, 1978) remains underdeveloped – in no small part because the founder’s prior experience (in particular, employment experience) has been shown to constrain the strategic choices that will be considered in new firm creation in a path-dependent manner (Fern et al., 2012; Gruber et al., 2008; Shane, 2000). In other words, the prevailing assumption in much of the literature is that new firms are created in the home industry of the founder (Agarwal et al., 2016; Campbell et al., 2017; Ganco, 2013), with only a minority of entrepreneurs considering alternative opportunities prior to launching their ventures (Gruber,
As a result of this emphasis, the basic notion that individuals identify so-called “third-person opportunities” that then trigger “first-person opportunity” exploitation (McMullen and Shepherd, 2006) has rarely been the subject of scholarly inquiry (Gruber et al., 2013). It is important to note, however, that the unemployed tend to be located in underperforming industries and, thus, the consideration of other, potentially more attractive industry domains seems to be a particularly pertinent feature of necessity entrepreneurship – one that needs to be core to our theorizing.

Following this line of reasoning, we develop our theorizing on the influence of an individual’s unemployment duration on industry choice in two main steps: we begin with a baseline examination and investigate the direct effect of unemployment duration on the industry-choice decision (Hypothesis 1). Specifically, we compare the long-term unemployed with the short-term and the medium-term unemployed entrepreneurs. We then enrich our theorizing by drawing on the two key factors just discussed – the individual’s industry-specific experience and the attractiveness of other industry domains relative to the home industry (the attractiveness of the opportunity landscape) – to examine how variation in unemployment duration moderates the effect that these key factors have on industry choice (Hypotheses 2 and 3). Figure 1 provides an overview of the conceptual framework guiding our research.

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**Hypothesis 1: Unemployment Duration and Industry Choice**

Our first hypothesis examines the direct effect that the unemployment duration experienced by an individual has on the industry-choice decision in entrepreneurship. In this vein, it is important to recognize that necessity entrepreneurs face a number of pressures not experienced by other entrepreneurs, and those pressures will increase with increasing time spent in unemployment. In
particular, three main arguments drawn from research on the unemployed suggest that founders will be more likely to start their ventures in external industries the longer they are unemployed.

First, nearly a century of research on the psychological consequences of unemployment tells us that unemployed individuals will become increasingly desperate and experience distress with increasing duration of their unemployment spell (Eisenberg and Lazarsfeld, 1938; Fryer, 1997; Murphy and Athanasou, 1999; Paul and Moser, 2009). This is because employment helps to fulfill a number of important psychological needs such as providing status, time structure, social contact, collective purpose, and activity – and being unemployed means that one is deprived of these important psychological benefits (Jahoda, 1982). In addition, the unemployed are subjected to a substantial psychological cost as time passes, given that they experience continued failures in job seeking and repeatedly conjure feelings of rejection (Krueger and Mueller, 2012). Hence, similar to the unemployed workers’ willingness to move to other industries as they become more and more desperate (cf. Moscarini, 2001), we expect that, ceteris paribus, they will become more likely to start any type of self-employed activity (i.e., beyond their home industry) that promises to get them out of their increasingly distressed situations.

Second, an increase in the length of an unemployment spell also connotes increasing financial pressures, as unemployment benefits will decrease and eventually terminate, as an individual’s savings come to an end, and as costly replacements or repairs (e.g., of household items) become necessary (Frese and Mohr, 1987; Fryer, 1997; Jackson and Warr, 1984). Thus, as time passes, unemployed individuals will find that they will no longer be able to pursue minor goals (e.g., going out for dinner) and major goals (e.g., offering proper education to their children) in their life –important developments that run counter to their human desire for self-directedness and agency (Fryer, 1997) and that will lower their standard of living. Again, with
such increasing financial pressure, the unemployed will feel a greater need to start “any” type of activity that could produce an income and, thus, will be more likely to create ventures in external industries.

Third, with increasing time spent in unemployment, individuals will also experience increasing social (family, friends etc.) and institutional (e.g., employment agencies) pressures to take up an economic activity. Just like the unemployed themselves experience increasing distress, these factors create (additional) social-psychological distress (McGhee and Fryer, 1989) that will make the unemployed more and more likely to start their ventures in external industries with prolonged unemployment.

Against the backdrop of these three arguments, we propose the following relationship:

**Hypothesis 1 (H1):** As the duration of unemployment increases, the likelihood that necessity entrepreneurs will re-enter their home industry will decrease.

**Hypothesis 2: Unemployment Duration and Industry-Specific Experience**

Extending our theoretical account of the effects of necessity on industry choice in entrepreneurship, our second hypothesis examines how the duration of an individual’s unemployment moderates the relationship between the founder’s industry-specific experience and industry choice.

Industry-specific experience develops due to an individual’s prior work in a particular industry setting (Agarwal et al., 2004; Chatterji, 2009; Ganco, 2013). For example, even in the most mundane industries, a substantial amount of tacit knowledge needs to be accumulated in order to understand how the industry works (Gimeno et al., 1997). This knowledge is neither firm-specific nor general, but rather is unique to the industry in which a person has acquired
work experience (Neal, 1995) – and thus would lose its value if a founder creates a firm in a different industry (Fern et al., 2012).

Prior research shows that the industry-choice decision will depend on the amount of industry-specific experience a potential founder has and indicates a path-dependent relationship between industry-specific experience and industry choice. This is so, because founders with high levels of industry experience are endowed with deeper knowledge of how to conduct business in their home industry, and therefore will be more likely to seek to exploit such expertise (Agarwal et al., 2004; Campbell et al., 2012; Fern et al., 2012; Ganco, 2013; Hannan, Burton and Baron, 1996). Yet, the ties to their home industry also trace to the social capital of potential founders, which increases with time spent in an industry. As a result, individuals with substantial experience in an industry are deeply embedded in their home settings (Granovetter, 1985; Stinchcombe, 1965), which would give them a survival advantage should they re-enter their home industries (Agarwal et al., 2004).

Whereas prior research indicates that greater industry-specific experience connotes a higher likelihood of starting a venture in the home industry, we claim that the strength of this important relationship will be moderated by the founder’s unemployment duration. In particular, two arguments suggest that the effect of industry-specific experience on the industry-choice decision will be decreasing with increasing unemployment duration.

First, as pointed out, at the very beginning of an unemployment spell, necessity entrepreneurs may not be too different from employee entrepreneurs (Agarwal, et al., 2016; Campbell et al., 2012; Ganco, 2013), therefore making it likely that their industry experience leads to the creation of a venture in the home industry. Yet, the longer an individual remains in unemployment, the wider will be the gap between an individual’s then existing human and social
capital and the human and social capital that is required for employment in the home industry (Kiker and Roberts, 1984; Lazear 1976; Phelps, 1972), thereby leading to a gradual loosening of bonds to the home industry. In this regard, unemployment not only leads to the deterioration of skills and contacts specific to previous employers, occupations, and industries, but also impedes the accumulation of work experience (e.g., Arulampalam, Gregg and Gregory, 2001; Phelps 1972; Lazear 1976), including the accumulation of up-to-date knowledge as the industry may be changing and evolving. Thus, with increasing time spent in unemployment, the gap between the skills possessed by individuals and those required by the employers (Handel, 2003) will become wider—and hence the more that these individuals will question the potential fit with their home industry, thereby increasing the likelihood that they will create new firms in external industries.

Second, an increasing duration of unemployment may motivate individuals to move to an external industry because they will suffer from increasing stigmatization in their home industry (Eriksson and Rooth, 2014). In particular, labor researchers note the “scarring” effects of unemployment—in that the unemployed may be perceived as “losers” by key industry stakeholders, or as being responsible for their unemployment status—a perception that is reinforced the longer the unemployment period is (Eriksson and Rooth, 2014; Heckman and Borjas, 1980; Karren and Sherman, 2012; Vishwanath, 1989). Moreover, the isolation of the stigmatized from other members of the community (Link and Phelan, 2001) in turn should decrease both the attachment of the unemployed to the home industry and their feelings of industry membership. That is, the network ties that root individuals with industry experience to their home industries not only fray with increasing duration of unemployment, but can also be severed due to the stigma that attaches to these individuals. For example, industry actors may shun the stigmatized long-term unemployed, or at least are less likely to act as references for
them in the marketplace. As a result, we expect that the longer people are unemployed, the more they will change the way they view themselves and their fit with the home industry—and thereby will become more likely to found firms in external industries.

Against the backdrop of these arguments, we propose the following relationship:

**Hypothesis 2 (H2):** The duration of unemployment weakens the positive relationship between industry-specific experience and the likelihood that necessity entrepreneurs re-enter their home industry.

**Hypothesis 3: Unemployment Duration and the Relative Attractiveness of the Opportunity Landscape**

Finally, we extend our theorizing by considering the role that the attractiveness of different industry settings plays in the industry-choice decision. In order to do so, we bring to the forefront the notion of the opportunity landscape – a notion that, despite its importance, is surprisingly little studied (McMullen and Shepherd, 2006), arguably due to the aforementioned focus on home industry venturing (Agarwal *et al.*, 2004; Campbell *et al.*, 2017; Ganco, 2013) and to a more general lack of research on crucial pre-launch choices in new firm creation (Fern *et al.*, 2012).

Our general line of reasoning echoes McMullen and Shepherd (2006) and Shepherd, McMullen and Jennings (2007), who emphasize that entrepreneurial action can be seen as a sequence in which factors in the environment – third-person opportunities – attract the attention of a person, who then decides to engage in first-person action (the creation of a new venture). While we do not claim, and our theory does not require, that individuals possess a comprehensive knowledge of how their home industry is performing relative to all other industry
settings, it is reasonable to assume that prospective founders have a non-trivial sense of the performance of external industries vis-à-vis their home industry. Moreover, we do not claim that founders will need to know about entrepreneurial opportunities in other industry settings ex ante (Shane, 2000). Rather, we argue that even casual, everyday observations about the performance of other settings relative to the home industry will drive individuals to seek out opportunities in external industry settings if they represent “greener pastures.”

In effect, from a theoretical perspective, the attractiveness of external industries vis-à-vis the founder’s home industry should exert important pull- and push-effects (Schjoedt and Shaver, 2007). On the one hand, if external industries are performing better than an individual’s home industry, the opportunity landscape will exert pull-effects. This is because better performing industries – and the relatively more munificent settings they offer (Lumpkin and Dess, 2001) – tend to make it easier for founders to establish their firms as viable entities. For instance, research highlights that environmental munificence will exert a positive influence on profitability (Kotha and Nair, 1995).

On the other hand, the opportunity landscape can exert push-effects on the industry-choice decision, driving the founder away from the home industry. For instance, industries characterized by shrinking demand not only make it more difficult for founders to attract the financial capital required for the creation of their ventures, but also create challenges in achieving sales and gaining a foothold in the marketplace due to relatively intense competition among incumbent firms (Castrogiovanni, 1996; Lumpkin and Dess, 2001). Thus, individuals in lower performing industries will be concerned about whether the demand in their home industry will be able to sustain the creation of their venture (cf. Wu, 2013).

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3 For instance, research shows that people can find opportunities in other industries by searching known information channels (Fiet, 2007) and/or by engaging with their social networks (Gruber, MacMillan and Thompson, 2013).
Due to these pull- and push-effects, an attractive opportunity landscape will entice individuals to exploit opportunities in greener pastures, rather than remain in lower performing home industries. However, taking into account an individual’s unemployment duration, we propose that the effects of an attractive opportunity landscape on industry choice will not be uniform. Rather, industry-choice decisions will be\textit{ more strongly} influenced by an attractive opportunity landscape the longer an individual is unemployed – a line of reasoning that mirrors research on displaced workers showing that conditions in the home industry influence subsequent job search behavior and ultimately their decision to re-enter their home industry or to switch to external industries (Fallick, 1993). Specifically, two main performance-related arguments suggest an increasing enticement by an attractive opportunity landscape the longer an individual is unemployed.

First, an increasing unemployment spell connotes a greater sensitivity with respect to the potential financial performance of the venture. As discussed in relation to Hypothesis 1, unemployed individuals will experience a greater need to generate an income due to the depletion of financial savings over time (Brief \textit{et al.}, 1995; Frese and Mohr, 1987; Fryer, 1997; Jackson and Warr, 1984). In fact, when external industries are more attractive than the home industry, the factors pushing individuals away from their home industry are high due to the relatively less munificent setting that the home industry provides. In particular, less munificent environments (i) make it more difficult for firms to obtain key resources (Brüderl and Schüssler, 1990; Castrogiovanni, 1996; Starbuck, 1976)—a condition that is particularly problematic for new firms seeking to establish themselves as viable organizational entities; (ii) are less forgiving of managerial errors (Beard and Dess, 1981; Castrogiovanni, 1996), making it more likely that new firms with their limited or non-existent organizational slack will fail; and (iii) make it more
difficult for new firms to attract and retain customers and, hence, to survive and achieve revenues (Castrogiovanni, 1996; Gruber et al., 2008). Thus, because of an increasing need to generate an income, we expect that longer someone is unemployed, the more likely it is that this individual will create a firm in a more attractive external industry than in their relatively less attractive home industry.

Second, we expect that with increasing unemployment duration, it will become more likely that individuals will be motivated by an attractive opportunity landscape due to lower opportunity costs of moving away from the home industry. In particular, it seems that due to depreciation of skills and contacts over time, the longer an individual spends in unemployment, the less human and social capital is lost in a move to an external industry. Similarly, because of stigmatization occurring over time, any legitimacy benefits that individuals may initially draw on in firm creation in the home industry will decrease as well, making it more difficult to obtain resources and organize new firm operations (Stinchcombe, 1965; Delmar and Shane, 2004). In contrast, the short-term unemployed should be less enticed by an attractive opportunity landscape, given that their previous resource expenditures in learning the routines and the practices of the domain (Tykocinski and Ortmann, 2011), in developing their network of contacts, and in building a reputation, will not have depreciated as much – a line of reasoning that resonates with rationales discussed in studies on employee entrepreneurship, where firm creation in the home industry is the general expectation (e.g., Ganco, 2013).

Taken together, these financial performance and opportunity cost arguments suggest the following relationship:
**Hypothesis 3 (H3):** The duration of unemployment amplifies the negative relationship between the attractiveness of the opportunity landscape and the likelihood that necessity entrepreneurs re-enter their home industry.

**DATA AND METHODS**

We use primary and secondary data to examine how an individual’s unemployment duration influences the industry-choice decision. For our primary data, we surveyed a sample of individuals who created new ventures with financial assistance from the National Employment Agency in Greece. These respondents were part of a “New Entrepreneurs 33-64 Years” program that was designed to support their transition from unemployment to self-employment. Individuals were eligible to apply for the program if they were registered with the Employment Agency. Those applying attended a one-week entrepreneurship seminar offered by the Employment Agency before submitting a business plan for approval by the Employment Agency. Each applicant received 15,000 Euro during the first year of their business activity, 5,000 Euro for the second year of operation, and 1,000 Euro for the third year of operation.

We collected data using a self-designed questionnaire administered in 2013 that was filled in by formerly unemployed entrepreneurs who created their businesses in 2008 and 2009. Firms in our sample included those that were still in existence, as well as those that had failed at some point prior to the survey. As discussed in further detail below, we combine this primary data with secondary data on industry characteristics obtained from both the Greek Statistical Office and the Independent Authority for Public Revenue (i.e., the official Revenue Authority in Greece), as well as data on skill-relatedness obtained from the database developed by Neffke and Henning (2013).

**Primary Data**
Survey design and response rate. To collect the primary data, we developed a 6-page questionnaire based on a comprehensive literature review as well as from insights based on interviews with both Employment Agency employees and necessity entrepreneurs. We pre-tested the questionnaire on five employees from the Employment Agency and 19 founders who varied in terms of gender, age, education, business activities, etc. For instance, these founders created firms in industries as varied as gardening services, retail footwear, flower shops, tax consultancy, funeral parlors and speech therapy. Minor wording and format modifications were made in order to improve the clarity of several questions.

Of the program participants to whom the employment agency sent requests to perform a survey, 610 opted to participate, representing a response rate of 56.27 percent. Employees of the Greek Employment Agency personally administered the questionnaires to these founders. We discarded 34 responses due to missing information on key variables, giving us a sample size of 576 and an effective response rate of 53.14 percent. We tested for non-response bias by comparing the age and gender of respondents and non-respondents, and did not uncover any evidence of such bias in our sample.

Secondary Data

We combine the survey data with secondary data from three main third-party sources. First, we obtained data on industry demand conditions and industry wage levels from the Greek Statistical Office, which is responsible for collecting and disseminating Greek statistics to the statistical office of the European Union. The industry revenue indices obtained from this agency allow us to create a measure that captures the relative attractiveness of the opportunity landscape (Hypothesis 3). From the same source, data was obtained to control for dynamism and the wage levels in the home industry. Second, we obtained secondary data on new firm failure rates for the
focal industry from the Independent Authority for Public Revenue in Greece—the official
Revenue Authority in Greece with the mission to determine, assess and collect tax, customs, and
other public revenue. Third, we obtained data on skill relatedness from the database developed
by Neffke and Henning (2013) in order to account for the fungibility of skills of necessity
entrepreneurs.

Measures

Dependent variable. Industry choice is coded one if the industry in which founders created a
firm was the same as the industry in which they worked prior to becoming unemployed, and zero
otherwise. We measured industry on the one-digit level (i.e., the “letter” level of the
classification of economic activities in the European Community (NACE Rev. 2)), which
corresponds to sectors such as “C. Manufacturing” and “F. Construction.” This approach can be
considered as conservative, because it connotes a considerable “distance” in terms of moving
from the home industry to an external industry and usually involves a (significant) loss of
industry-specific experience. This logic is akin to unrelated diversification moves examined in
strategy research (e.g., Palich, Cardinal and Miller, 2000).

Independent variables. Our focal independent variable is the founder’s duration of
unemployment, which we measure based on survey respondent’s choices among nine
unemployment categories: “less than 1 month,” “1 to 2 months,” “3 to 4 months,” “5 to 6
months,” “7 to 9 months,” “10 to 12 months,” “13 to 24 months,” “25 to 36 months,” and “more
than 36 months.” These categories do not reflect a purely linear measure, and thus, following
theory and convention, we created three dummy measures to capture short- (less than 13
months), medium- (13-24 months), and long-term (greater than 24 months) unemployment. In

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4 As outlined below, we control for skill relatedness among industry sectors following Neffke and Henning (2013).
5 Robustness tests employing a self-assessed scale of necessity strongly support the use of the primary measure.
particular, we generated these categories based on our theorizing that necessity entrepreneur’s behaviors and actions vary by unemployment duration, and on commonly held groupings of unemployment duration\(^6\), which were refined in the aftermath of the 2008-2009 economic crisis to separate the long-term unemployed into those who have been out of work for 13-24 months and those that have been unemployed for a period greater than 24 months (BLS, 2016; Europa, 2016; Eichhorst \textit{et al.}, 2015).

In our examination of the role of founder human capital in necessity entrepreneurship, we focus on the role of industry-specific experience in shaping industry choice, while controlling for the founder’s general human capital (cf. Mayer, Somaya and Williamson, 2012). Following prior research (Delmar and Shane, 2004), \textit{industry-specific experience} measures the number of years that founders worked in the industry in which they held a job prior to becoming unemployed (i.e., their home industry).

We construct our measure for \textit{attractiveness of the opportunity landscape} in two steps. First, in order to capture the relative attractiveness of different industry settings we follow the logic of studies on firm diversification and consider industry-specific growth rates. Growth rates have the important benefit that they are comparable across industries, as they denote the rate of revenue change rather than the absolute value of the turnover of an industry (Wu, 2013). Because we are interested in the relative attractiveness of industries, this measure captures the revenue growth rate of the industry in which the founder worked prior to becoming unemployed (home industry) subtracted from the average of the revenue growth rates of all other industries (external industries). The home industry component as well as the external industry component of this measure are based on the respective four-quarter moving average of the revenues growth rates.

\(^6\) For example, the EU and the OECD define long-term unemployment as being those who have been out of work for at least one full year (Eurostat, 2015b; OECD, 2015).
prior to new firm creation and, thus, reflect the growth trend (cf. Wu, 2013). We obtained the required data from the Greek Statistical Office, applying the most recent sector classification in the European Community (NACE Rev. 2).

In a second step, we take into account that some industry settings may be more “distant” to a given founder because of skill fungibility, and therefore weight the growth-rate measure described just above with a skill-relatedness measure. Specifically, we draw on the skill-relatedness index developed by Neffke and Henning (2013). This index is particularly pertinent for our work, as it is derived from data that captures labor flows between industry settings. Because Neffke and Henning (2013) draw on data from Sweden, we had to adapt their index with information on the knowledge barriers of the focal industry in the geographical context of our study (Greece). Our rationale in this regard is that industry barriers affect industry choice (Bates, 1995) in that knowledge requirements (e.g., certificates required for some industries in Greece) may serve as barriers for founders, lowering founders’ fungibility of skills. Hence, in order to create our skill-fungibility measure, we took the average of skill relatedness indices for each focal industry in order capture the moves from the focal (source) industry to all remaining industries—that we then weighted with the knowledge barriers of the focal industry.⁷

**Control variables.** We control for a number of individual- and industry-level factors that are likely to affect new firm emergence.

*Demographic and individual characteristics.* In terms of demographic factors, we control for founder’s gender and marital status, as both may influence career experiences and entrepreneurial choices (Dimov, 2010; Folta, Delmar, & Wennberg, 2010). *Gender* was coded

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⁷ We obtained the measure of knowledge barriers using expert coding, that is, we asked two experts of Greek nationality to assess each industry according to the knowledge barriers encountered in new firm entry (inter-rater agreement: 0.93).
one if the founders were males, and zero if they were females, and *marital status* was coded one if the respondent was married, and zero otherwise. We also control for founder’s *age* at the time of business foundation, as founder’s age has been found to affect new firm creation (Lévesque and Minniti, 2006). Given potential variation in *financial capital* among respondents, we include a self-reported measure of the amount of financial support provided by family members (ranging on a 5 point Likert-type scale from “no support” to “a lot of support.” Finally, we also took into account psychological factors that may differ across founders, that is, measures that capture the founder’s *openness to experience* and *extraversion* (Barrick and Mount, 1991; Borkenau and Ostendorf, 1993).

*Human capital characteristics.* We use five controls for necessity entrepreneurs’ human capital: education, the breadth of industry experience, prior entrepreneurial experience, prior management experience, and prior leadership experience. *Education* has been considered an important source of human capital (Becker, 1964) and its measure is a dummy variable coded one if the founder had a bachelors’ or higher degree and zero otherwise, and was created based on the information respondents provided on the formal education degrees they had obtained (primary school through tertiary education). In order to control for the possibility that founders obtained experience in multiple industries, we include a control for *industry breadth*. A broader set of industry experience may increase the number of alternative industries the founders will consider for re-entry (Gruber, 2010) and is measured as a count of the number of industries in which the founder acquired work experience prior to the foundation of their business. Because prior experience in entrepreneurship might influence new firm emergence and performance (Gruber *et al.*, 2008), we employ a dummy variable that flags if the founder possessed *entrepreneurial experience* (1 = yes, 0 = no).
We also control for management experience, as founders possessing management experience have a better understanding of the content and the scope of their business activity (Dencker and Gruber, 2015). We created this composite measure based on founders’ management education (a dummy variable indicating whether the founder had any type of formal management education) and managerial experience (self-assessed by founders at the time they created their business on a 5-point Likert-type scale). Based on this information, we coded our management experience measure “1” when respondents had either management education or “high” or “very high” levels of managerial experience, and “0” otherwise.

Finally, following Dencker and colleagues (2009), we control for the founder’s prior leadership experience, as such experience can have substantial effects on the entrepreneurship process. We measure leadership experience from respondents’ reports of the highest position they had ever attained prior to launching the venture: “technical employee (non-leadership position),” “technical employee (leadership position),” “manager (non-leadership position),” “manager (leadership position),” and “other.” Respondents selecting the “other” category were asked to describe their highest previous position. Based on this information, we coded a dummy measure that indicates whether the founder possessed leadership experience (=1), or not (=0).

Industry characteristics. Finally, in order to control for industry factors, we control for three measures. First, we include failure rates of new firms in the founder’s home industry. This measure is based on the yearly failure rates of new firms in a particular industry prior to the creation of the new venture. We created this measure using data obtained from the Independent Authority for Public Revenue in Greece based on the most recent sector classification in the European Community (NACE Rev. 2). Second, we control for industry dynamism to better capture industry characteristics (Dess and Beard, 1984). In particular, this measure is based on
the respective four quarters of industry sales, and is calculated by capturing the errors around the beta line. Third, we include the wage levels to reflect the labor market conditions in the home industry. We created the industry dynamism and wage levels measures by using data obtained from the Greek statistical office.

RESULTS

Descriptive Statistics

Table 1 presents the descriptive statistics and correlation matrix for our variables. We note that there is considerable variation in the focal measures observed in our data. In particular, there is a fairly broad range of unemployment duration and industry-specific experience among founders in our sample, and considerable variation in terms of the attractiveness of the opportunity landscape. For example, more than a quarter of founders in our sample are long-term unemployed (greater than 24 months).

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Insert Table 1 about here
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Multivariate Analyses

Results from our logit regression models are presented in Table 2. Model 1 includes the control measures, Model 2 adds our focal duration of unemployment variable dummies (with the long-term unemployed being the reference category), and Model 3 adds measures of the founder’s industry-specific experience, and the attractiveness of the opportunity landscape (i.e., the attractiveness of the home industry relative to external industries). Models 4 and 5 add interactions between duration of unemployment and industry-specific experience, and between duration of unemployment and attractiveness of the opportunity landscape. Finally, Model 6 presents the full model including all interactions. The results are quite robust across the models.
Hypothesis 1 proposed that the likelihood that necessity entrepreneurs create a firm in their home industry decreases the longer is the period of their unemployment. As Model 2 of Table 2 shows, the industry-choice decision varies considerably according to duration of unemployment. The estimated coefficients for the short-term and the medium-term unemployed are 0.942 (p=0.000) and 0.630 (p=0.041) respectively. The estimated coefficient of 0.942 means that for the short-term unemployed, compared with the long term unemployed, the logarithm of the odds ratio of re-entering their home industry was 94.2% higher. Likewise, the estimated coefficient of 0.630 means that for the medium-term unemployed, the logarithm of the odds ratio of re-entering their home industry was 63% higher. In other words, the odds of re-entering the home industry for the short-term unemployed are 2.56 times the odds of the long-term unemployed (p= 0.000), and the odds of the medium-term unemployed are 1.87 times the odds of the long-term unemployed (p= 0.041). Translating this into a marginal effect, it means a 19.42% and a 12.72% higher re-entry probability for the short-term unemployed and the medium-term unemployed respectively, compared to the long-term unemployed. To sum up, consistent with H1, founders with the greatest time spent in unemployment behave very differently when setting up their firms than do founders who have spent less time in unemployment.

Turning to industry-specific experience, Hypothesis 2 proposed that the founder’s unemployment duration will moderate the industry experience – industry choice relationship. As Model 4 of Table 2 shows, there is a significant (and negative) interaction effect (b= -0.077, p=0.022) between the unemployment duration and the level of industry experience, but only for the short-term unemployed (relative to the long-term unemployed).
In order to see more clearly how the duration of an individual’s unemployment spell moderates the effect of industry-specific experience on industry choice, we calculated the marginal effects of the three unemployment variables. Figure 2a provides predictive margins for the unemployment variables at low (-1 s.d.) and high (+1 s.d.) levels of industry experience (based on Model 4 of Table 2). At low levels of industry experience, the marginal effect is 0.468 for the short-term unemployed (p = 0.000), 0.337 for the medium-term unemployed (p = 0.000), and 0.215 for the long-term unemployed (p = 0.000). Thus, at low levels of industry experience, our findings are consistent with the notion that the depreciating and stigmatizing effects of an increasing duration of unemployment lead to a lower probability of creating a firm in the home industry – with the probability the lowest for the long-term unemployed. This important pattern holds for founders with high industry experience, albeit with smaller differences between the unemployment groups in the likelihood of founding a firm in the home industry. At high levels of industry experience, the marginal effect is 0.542 for the short-term unemployed (p = 0.000), 0.549 for the medium-term unemployed (p = 0.000), and 0.497 for the long-term unemployed (p = 0.000). We also conducted contrasts of marginal predictions. The contrast that estimates the interaction of the comparison of the short-term unemployed with the long-term unemployed by industry experience is significant (p = 0.022), but the other two contrasts (short-term vs. medium-term, and medium-term vs. long-term) are not significant. In effect, at any given level of industry-specific experience, the long-term unemployed are less likely to create a firm in their home industry than are the short-term unemployed. However, we also see that the slope for the long-term unemployed is relatively steeper than that of the short-term unemployed – an

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8 Marginal effects were calculated using the margins command for STATA (Mitchell, 2012).
intriguing and unexpected result that suggests that founders experiencing longer unemployment spells may be more susceptible to the sunk cost fallacy.

Thus, although these patterns are consistent with H2, in that founders who were long-term unemployed are more likely to create a venture in their home industry than low-necessity founders regardless of level of experience, they also highlight that the rate at which founders abandon their industry experience differs by duration of unemployment and experience, and not necessarily in trivial ways.

Hypothesis 3 investigates the moderating effect of unemployment duration on the relationship between the attractiveness of the opportunity landscape and industry choice. Results in Model 5 in Table 2 show that unemployment duration moderates the effect of the attractiveness of the opportunity landscape on the industry-choice decision, albeit in ways that are only partly consistent with H3. Compared to the long-term unemployed, the interaction effects between the attractiveness of the opportunity landscape and the short- and medium-term unemployed categories are negative and significant: $b = -0.082$ (p= 0.035) for the interaction with the short-term unemployed and $b = -0.147$ (p= 0.006) for the interaction with the medium-term unemployed. In order to better understand the interaction effect, we calculated the marginal effects of the three unemployment variables (+/- 1 s.d.).

Figure 2b (based on Model 5 in Table 2) provides the predictive margins and reveals considerable differences between the long-term unemployed and other necessity entrepreneurs in their response to external opportunities in the industry-choice decision. At low levels of attractiveness of the opportunity landscape, the marginal effect is 0.567 for the short-term
unemployed (p= 0.000), 0.585 for the medium-term unemployed (p= 0.000), and 0.308 for the long-term unemployed (p= 0.000). At high levels of attractiveness of the home industry vis-à-vis the external industries, the marginal effect is 0.429 for the short-term unemployed (p= 0.000), 0.293 for the medium-term unemployed (p= 0.000), and 0.370 for the long-term unemployed (p= 0.000). Contrasts of marginal predictions are significant for the contrast of the short-term vs. the long-term unemployed (p=0.035) and for the contrast of the medium-term vs. the long-term unemployed (p=0.006), but not for the contrast of the short-term vs. the medium-term unemployed (p= 0.176). Overall, our findings suggest that the long-term unemployed do not react positively to more attractive external opportunities when embarking on their entrepreneurial endeavor.

DISCUSSION

Necessity entrepreneurship is a highly prevalent phenomenon not only in the developing world but also in developed countries, where necessity entrepreneurs come from the ranks of the unemployed (Brewer and Gibson, 2014; Global Entrepreneurship Monitor, 2017; Vivarelli, 2013). By explicitly considering the duration of the unemployment spell as a key marker of the level of need experienced by a necessity entrepreneur, this paper not only set out to offer a more nuanced understanding of necessity entrepreneurship, but also sought to reconcile disparate predictions obtained from work on opportunity (employee) entrepreneurship on one hand, and employment research on the other hand. Specifically, we examined how unemployment duration affects one of the most fundamental strategic decisions that entrepreneurs face when setting up their firms, that is, ‘what business should I be in?’ (Abell, 1980; Hofer and Schendel, 1978). Whereas research on opportunity (employee) entrepreneurship typically suggests that
entrepreneurs launch their businesses in the industries in which they have gathered their experience (their home industry), arguments from employment research make us expect that the longer the unemployment spell of necessity entrepreneurs, the more they will differ in their firm-related actions from opportunity entrepreneurs – even when fundamental decisions such as industry choice are considered in new firm creation.

In a nutshell, our analyses reveal that the duration of unemployment experienced by necessity entrepreneurs has a significant negative effect on the likelihood that they create a firm in their home industry. Extending this baseline relationship, we also find that the unemployment duration moderates how prior industry-specific experience affects industry choice. For individuals who have experienced longer unemployment spells, the effect of industry-specific experience on industry choice differs starkly from the short-term unemployed, as at any given level of industry-specific experience, the long-term unemployed are less likely to remain in their home industry than are the short-term unemployed.

A similar pattern emerges for the interaction between the unemployment duration and the opportunity landscape, albeit in varied and partly unexpected ways: as the attractiveness of external industries increases, the likelihood of creating a firm in the home industry decreases for necessity entrepreneurs who experienced short- or medium-term unemployment spells. For the long-term unemployed, we see a markedly different and surprising picture emerge, in that the relative attractiveness of the opportunity landscape increases the likelihood of creating a firm in the home industry instead of external industries.

Overall, by making the duration of an individual’s unemployment our focal study variable and by examining how it affects one of the most fundamental, strategic decisions in
entrepreneurship, we have been able to obtain results that offer novel theoretical insights as well as implications for public policy.

**Theoretical Implications**

Several theoretical implications emerge from our study. First, and perhaps most importantly, our findings call for a more nuanced understanding of necessity entrepreneurship, as the prevailing binary characterization (opportunity vs. necessity entrepreneurship) masks important differences that exist in necessity entrepreneurship itself. Arguably, this simple characterization has been useful for initial research on the topic, given that the importance of necessity entrepreneurship had to be established. Yet, now that scholars have increasingly become aware of its significance, they are required to change their thinking and apply a more fine-grained lens on the phenomenon – a lens that allows scholars to capture its richness and heterogeneity. In this regard, our results not only extend psychological research on the effects of unemployment duration on a person’s thinking, behaving and acting (Boyce et al., 2015) to the study of (new) firms, but also allow us to show that differences in unemployment duration have important ramifications for organizational-level decisions.

Second, our focus on necessity entrepreneurship can be viewed as a natural extension to the rapidly growing literature on employee entrepreneurship (e.g., Agarwal et al., 2004; Campbell et al., 2017; Ganco, 2013; Klepper and Sleeper, 2005). As discussed, entrepreneurs who are coming from the ranks of the short-term unemployed may not be too different from entrepreneurs who launch their ventures from their employed position. In effect, our results reveal two important insights in this regard: (1) that the short-term unemployed are highly likely to create ventures in their home industry, and are much less tempted by an attractive opportunity landscape – findings that strongly support conceptions in the employee entrepreneurship
literature, where employee entrepreneurship is defined as ‘home-industry venturing’ (cf. Ganco, 2013) and, thus, the potentially “tempting” nature of the opportunity landscape is not part of existing theoretical discourse; and (2) that the strong path dependencies will be eroded with increasing unemployment duration, making it more likely that a venture is created in an external industry – yet only up to a point, where individuals with the longest time spent in unemployment exhibit strategic decision-making rationales that are inward-looking, void of any considerations of the venturing context (i.e., attractiveness of the opportunity landscape).

Third, our findings help to advance strategy research examining early-stage strategic choices in new firm creation – an area we are just beginning to understand, yet one that is of key significance, given that early strategic choices often have long-term effects on firms (Fern et al., 2012; Gruber et al., 2013; Shane, 2004). We advance this line of research by studying perhaps the most far-reaching early-stage strategic decision that founders will make: “what business should I be in?” Furthermore, our findings allow us to add critical insights to existing theoretical accounts, as theorizing in this vein has focused on factors related to the founder’s knowledge and experience (Fern et al., 2012). We show that unemployment duration is a key moderating variable of the two main factors driving this strategic decision – the founder’s pre-existing industry experience and the relative attractiveness of external opportunities. In fact, the effects that these core variables have on industry choice can turn out very differently once we consider the duration of the necessity entrepreneur’s unemployment.

Fourth, although conceptual studies have noted the importance of a person’s exposure to third-person opportunities (McMullen and Shepherd, 2006), and research has begun to shed light on this key element in the entrepreneurship process (Autio, Dahlander and Frederiks, 2013), our study is the first to show empirically how the relative position of entrepreneurs in the
opportunity landscape affects where they create their new firms. We thereby add a critical element to accounts examining factors shaping founders’ attraction to opportunities, and hence their entry decisions (Haynie et al., 2009; Shepherd, Williams and Patzelt, 2015). Notably, our theory complements rather than contradicts accounts that point to the key role of prior knowledge in the pre-launch entrepreneurship process (Gruber et al., 2013; Shane, 2000), as we provide a detailed discussion as to why entrepreneurs may consider opportunities in potentially greener pastures, an aspect that was lacking in previous studies.

Fifth, our results can also add to classic discourse on strategic decision making, as we show how necessity experienced by decision-making agents will affect their strategic decisions in ways that cannot be readily extrapolated from existing theories. Although strategy research highlights how contingency factors may affect agents’ awareness and interpretation of information and, thus, their decision making (e.g., Bourgeois and Eisenhardt, 1988; Bromiley, 1981), the extant literature has yet to understand how need affects their strategic decisions.

Finally, our study advances knowledge of the role of path dependence in organizations (e.g., Beckman and Burton, 2008) to explore the little studied issue of when agents break paths and/or create new ones (Garud and Karnøe, 2001; Gruber, 2010). Our theorizing helps to explain when agents are more likely to switch to a new path (i.e., new industry setting) by highlighting (i) the systematic influence of an individual’s level of necessity, (ii) an individual’s prior experience in the form of industry-specific experience, and (iii) the attractiveness of an existing path vis-à-vis alternative paths in shaping agents’ decision-making.

Public Policy Implications

From a policy perspective, the results of our study have key implications for governmental agencies seeking to help the unemployed transition successfully to entrepreneurship. Our results
reveal the important effects that necessity entrepreneurs’ unemployment duration has on their industry choice, thereby highlighting important heterogeneity among necessity entrepreneurs. Both aspects suggest that a “one size fits all” approach—as is evident in many government programs—may be inferior to more customized policy approaches that could include specific training programs for the longer-term unemployed before they embark on their entrepreneurial journey.

Limitations and directions for future research

Several potential limitations should be considered when interpreting our findings. First, our analysis of relative industry attractiveness (i.e., the opportunity landscape) can be viewed as conservative, because we assess it on the level of one-digit industry codes. As such, founders deciding to abandon their home industries will enter very different industry domains (e.g., they may move from “manufacturing” to “accommodation and food service activities,” or from “human health and social work activities” to “commerce”), thereby providing solid support for the push- and pull- arguments offered in our study. The promising results suggest that future research could extend our study by examining effects of moving between related industry settings (e.g., between sub-industries within the same one-digit level industry), as some industry-specific human capital will be preserved in related industry moves (Farjoun, 1998; Neffke and Henning, 2013).

Second, our results are limited in terms of the types of entrepreneurial activities that we observe. In particular, ventures may be started in settings that span multiple industries, or in industries that are in a more fluid, emerging stage, which are not present in our sample. Nevertheless, the start-ups we examined span a wide range of industries, suggesting that our findings generalize to a wide variety of opportunities.
Third, we studied necessity entrepreneurship in Greece during difficult economic times and, thus in a context facilitating a thorough investigation of this phenomenon because of its high unemployment rates. Because our study addresses a geographical area that is infrequently encountered in empirical entrepreneurship and management research, a potential concern is that the generalizability of our findings may be somewhat limited. However, the considerable range in our measures of unemployment duration, founder industry experience, and attractiveness of the opportunity landscape suggest that generalizability concerns may be minimized.

Conclusion

Necessity entrepreneurship is not only an important phenomenon but also an intriguing study area that, as the current study has shown, can help us advance understanding of a number of key research areas. We therefore encourage other researchers to follow our path and adopt a more nuanced understanding of the phenomenon and investigate how necessity will shape founders’ strategic choices, behaviors and actions. From a broader perspective, this would represent a promising undertaking that will not only help scholars to advance research on necessity entrepreneurship but also to develop a more complete understanding of both the origins of firms and the origins of strategic decisions, as well as the reasons for observed firm heterogeneity.
FIGURES AND TABLES

Figure 1. Conceptual framework

Unemployment Duration

Industry-specific Experience

Attractiveness of Opportunity Landscape

H1 -

H2 -

H3 -

Industry Choice
“Home” Industry Re-entry

+ 

-
Figure 2 (a-b). Interaction effects

(a) Industry-specific experience and industry choice

(b) Attractiveness of opportunity landscape and industry choice

Note: Industry choice is coded one if the industry in which the individual founded a firm was the same as the industry in which that individual worked prior to becoming unemployed, and zero otherwise. Predictive margins with 95% confidence intervals.
Table 1. Descriptive statistics and correlations

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<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>Min</th>
<th>Max</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>1</td>
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<td>3. Medium-term unemployed</td>
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<td>6. Attractiveness of opportunity landscape</td>
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<td>7. Gender (Male=1)</td>
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<td>14. Industry breadth</td>
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<td>18. New firm failure rates</td>
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<td>-0.07</td>
<td>-0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>20. Industry wage levels (in thousands)</td>
<td>20.05</td>
<td>3.04</td>
<td>16.01</td>
<td>35.61</td>
<td>-0.21</td>
<td>-0.02</td>
<td>-0.03</td>
<td>0.05</td>
<td>-0.08</td>
<td>-0.26</td>
<td>0.01</td>
<td>0.06</td>
<td>-0.04</td>
</tr>
</tbody>
</table>

n=576 firms/founders. Descriptive statistics and correlations apply to the first year of founding. Variables capturing founder experience or age (i.e., industry-specific experience, age, and years of education) are mean-centered for the regression analysis.
Table 2. Logit regression models predicting the likelihood of creating a firm in the home industry

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (Male=1)</td>
<td>0.518</td>
<td>0.310</td>
<td>0.253</td>
<td>0.277</td>
<td>0.267</td>
<td>0.297</td>
</tr>
<tr>
<td></td>
<td>(0.194)</td>
<td>(0.202)</td>
<td>(0.210)</td>
<td>(0.211)</td>
<td>(0.213)</td>
<td>(0.214)</td>
</tr>
<tr>
<td>Marital status (Married=1)</td>
<td>0.173</td>
<td>0.262</td>
<td>0.216</td>
<td>0.228</td>
<td>0.259</td>
<td>0.268</td>
</tr>
<tr>
<td></td>
<td>(0.215)</td>
<td>(0.218)</td>
<td>(0.224)</td>
<td>(0.225)</td>
<td>(0.228)</td>
<td>(0.229)</td>
</tr>
<tr>
<td>Founder’s age</td>
<td>0.003</td>
<td>0.011</td>
<td>-0.002</td>
<td>0.001</td>
<td>-0.005</td>
<td>-0.001</td>
</tr>
<tr>
<td></td>
<td>(0.017)</td>
<td>(0.017)</td>
<td>(0.018)</td>
<td>(0.018)</td>
<td>(0.018)</td>
<td>(0.018)</td>
</tr>
<tr>
<td>Financial capital</td>
<td>-0.017</td>
<td>-0.003</td>
<td>0.001</td>
<td>0.001</td>
<td>0.002</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.064)</td>
<td>(0.065)</td>
<td>(0.067)</td>
<td>(0.067)</td>
<td>(0.067)</td>
<td>(0.068)</td>
</tr>
<tr>
<td>Observations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-square</td>
<td>92.52</td>
<td>92.52</td>
<td>92.52</td>
<td>92.52</td>
<td>92.52</td>
<td>92.52</td>
</tr>
<tr>
<td>Prob&gt; chi-square</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Standard errors in parentheses; p-values in brackets
REFERENCES


Mitchell M. 2012. *Interpreting and Visualizing Regression Models Using Stata*. Stata Press: College Station, TX.


