

HOW FOUNDER HUMAN CAPITAL AND FOUNDING CONDITIONS SHAPE NEW FIRM PERFORMANCE: A STUDY OF NECESSITY ENTREPRENEURSHIP DURING TIMES OF ECONOMIC CRISIS

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Economic crises have profound effects on societies, motivating many individuals to launch their own firms in order to make a living. Although these firms created “out of necessity” possess few resources besides their founder’s human capital, the role that this critical endowment plays in establishing a successful firm during a crisis is unclear, as existing knowledge offers diverging predictions about the value of general and specific human capital. We argue that this debate remains unresolved because we lack a holistic understanding of how each human capital type influences performance when founding conditions vary, and aim to reconcile the contrasting claims by considering how “hard” a crisis hits a given industry. Analyzing data collected from 500 founders who created firms in Greece during the Great Recession, combined with data from the Greek Statistical Office, we find that general human capital provides the greatest benefits, on average, during a crisis; yet specific human capital is more valuable in both the most favorable and the most unfavorable industry contexts. These results reveal how the value of human capital in entrepreneurship is contingent on founding conditions, and call into question existing notions of what it means to be resilient in a crisis.

Phenomenon

Key questions

Economic crises have considerable negative consequences for individuals (ILO, 2020; Verick, 2009). During the 2008 Great Recession, the unemployment rate increased by more than 50% in Europe—remaining above prerecession levels for a decade (Flores & Krogstad, 2018)—and, as the COVID-19 pandemic unfolded in 2020, unemployment in the United States reached levels not seen since the Great Depression of the 1930s (Petrosky-Nadeau &

Valletta, 2020). Faced with bleak prospects of securing employment during such dire economic times, becoming a “necessity entrepreneur”—someone who engages in entrepreneurial activity due to a need driven by adverse circumstances and a related lack of employment opportunities (Dencker, Bacq, Gruber, & Haas, 2021)—could be a beacon of hope for the unemployed, as the creation of their own new firm may allow them to establish their own source of income and thereby make a living (Nikiforou, Dencker, & Gruber, 2019).

What we know

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We know from the literature that starting a new firm is a challenging endeavor in “settled” times (Henderson, 1999; Josefy, Harrison, Sirmon, & Carnes, 2017), but it is especially so during times of crisis and for necessity entrepreneurs, who have few resources to draw upon besides their human capital (Brewer & Gibson, 2014). In particular, under these challenging conditions, the importance of founders’ human capital comes to the fore. Yet, when we consider the role that human capital plays in

establishing a successful new firm, existing knowledge offers diverging predictions (Dencker et al., 2021; Doern, Williams, & Vorley, 2019). On one hand, Lazear's (2005) influential theory on human capital in entrepreneurship argues that entrepreneurs are *generalists*, whose *broad skillsets* are important for creating new firms given that founders need to accomplish a wide variety of tasks. On the other hand, many necessity entrepreneurs are, in fact, *specialists* who are pushed into entrepreneurship as they lack employment opportunities due to the dire economic situation (Brewer & Gibson, 2014). Although these specialist founders lack the broad skillset emphasized in Lazear's (2005) theory, *their specific human capital endowments may nonetheless be conducive to new firm performance* because such specialized expertise gives them relevant, ready-to-use practical skills and deep knowledge of their domain (Epstein, 2019; Golsteyn & Stenberg, 2017; Hanushek, Woessman, & Zhang, 2011) that may be especially relevant during an economic crisis.

We argue that the diverging predictions regarding the relative value of general and specific human capital exist because we lack a coherent and holistic understanding of how each type of endowment influences new firm performance under different founding (industry) conditions. *We aim to reconcile these contrasting claims by considering how "hard" a crisis hits a given industry.* Whereas prior research has typically treated an economic crisis as an exogenous shock that affects the whole economy in the same way, in our novel approach we consider that not all industries are affected equally by a crisis: while some industries may face sharp downturns, others may even grow due to increasing demand for their goods or services and, therefore, *resemble firm creation in more stable times*. For instance, although the COVID-19 crisis hit leisure and hospitality industries hard, information and government sectors were robust to the challenges of this pandemic (Klein & Smith, 2021). Given these differences in founding conditions, founders vary in the extent to which they are tested when launching their new firms during a crisis—and, thus, the human capital endowments that best allow them to succeed with their endeavors may also vary across industries.

To examine how founders' general and specific human capital endowments affect the performance of their newly launched firms under different founding conditions, we collected and combined two distinct data sets. *The first data set was obtained from surveys of 500 individuals who created new firms in*

Greece during the 2008 Great Recession. Like other countries in Europe and around the world, Greece was hit hard by this long-lasting and widespread crisis, with one out of every five individuals in unemployment a decade after its onset (Flores & Krogstad, 2018). The individuals that we surveyed were *part of a government program* designed to help individuals transition from unemployment to self-employment. The second data set was obtained from the Greek Statistical Office to capture the growth and decline rates of industries in which the formerly unemployed entrepreneurs founded their businesses. In effect, this empirical context provides us with the opportunity to study widely differing founding conditions, as industry growth and decline rates in Greece during this period ranged from 5.6% to -38.0%.

Our results reveal that firms founded by individuals possessing general human capital endowments generated higher revenues on average during crisis compared to firms founded by individuals equipped with specific human capital—a result supporting Lazear's (2005) balanced skills theory. In contrast to what Lazear's theory predicts, however, specific human capital is more valuable in both the most favorable and most unfavorable industry contexts at founding. Moreover, we uncover that firms created by founders with specific human capital will perform better in the most *volatile* industries post-founding. Thus, our findings reveal that both specialist and generalist founders are able to operate a newly launched firm effectively during a crisis, yet their relative ability to generate strong firm performance depends critically on how hard the economic crisis affects their industry.

Our findings *offer a number of novel contributions*. By showing that the value of specific and general founder human capital is contingent on industry settings, our study not only helps to resolve the conflicting theoretical predictions that current theory offers but also indicates to future researchers that economic crises should be studied on a more granular level instead of as uniform events affecting the whole economy in the same way. Our results thus call into question existing notions of what it means to be "resilient" during an economic crisis, as different types of human capital can lead to superior outcomes—depending on the industry setting in which a newly launched firm is located. Interestingly, our results also *show that resilience is also a matter of "entrepreneurial luck" that occurs when the right person (i.e., possessing the appropriate human capital) happens to be at the right place (i.e.,*

industry) in times of adversity. Finally, our study has important practical applications for necessity entrepreneurs, as well as for governments and policy-makers seeking to help their citizens to overcome challenging economic crises.

PRIOR LITERATURE

Our study builds on and links two main bodies of prior work: research on how external conditions affect new firm performance, and research on human capital in entrepreneurship. In the following, we briefly review the main insights that these bodies of work offer for our research, thereby establishing the conceptual platform from which we develop our hypotheses.

External Conditions, Crises, and Challenges for New Firm Creation

The context in which a firm is born is widely considered to have a key impact on the emerging organization and its performance (Geroski, Mata, & Portugal, 2010). In this vein, studies in strategic management and entrepreneurship have frequently emphasized the influence of macroeconomic conditions on firm performance outcomes (Geroski et al., 2010; Kimberly, 1979; Robinson & McDougall, 1998). For instance, prior research has indicated that when environments are munificent, firms can benefit from having a greater range of strategic options at their disposal, and that the abundance of external resources will make it easier for them to pursue goals other than survival. In contrast, when external resources are scarcer, competition will intensify and firm profitability will suffer (Castrogiovanni, 1991).

A particular dire environmental context for firms is an economic crisis, which is defined as an “unanticipated significant downturn in the economy” (Lee & Makhija, 2009: 537)¹ that generates high-impact, uncertain, and complex situations for firms (Pearson & Clair, 1998). Although economic crises lead to challenging conditions for all types of firms, they are particularly challenging for new firms. Even

under normal conditions, new firms face important liabilities of newness and smallness that threaten their existence (Brüderl & Schüssler, 1990; Stinchcombe, 1965), and the adverse external conditions encountered during economic crises further exacerbate the challenges that have to be overcome (Kuckertz et al., 2020). For instance, new firms are particularly vulnerable to decreasing levels of demand for their offerings, as they typically do not possess financial buffers that could be used to sustain their business over an extended time span. Moreover, although the manifold changes triggered by an economic crisis may allow new firms to benefit from shifts in the competitive landscape and in customer preferences—especially since their small size may allow them to be fast and nimble actors in the marketplace (Anwar, Coviello, & Rouziou, 2021; Colombo, Piva, Quas, & Rossi-Lamastra, 2021)—it is unclear whether newly emergent firms can so benefit, as extant research on entrepreneurship in times of crisis has tended to focus on young already established firms (e.g., less than 10 years old) (e.g. Doern, 2016; for a recent overview, see Xu, Wang, Wang, & Skare, 2021) and has tended to neglect the early phase when a new firm is launched and founders seek to generate initial revenues.

An additional challenge created by economic crises is that they, like other exogenous shocks, are difficult for founders to foresee and prepare for appropriately (Williams & Shepherd, 2016), with existing plans often of little value if favorable industry settings become unfavorable in a short time period, thereby rendering prior strategies moot. As such, a critical factor shaping founders’ ability to generate revenues from their new firms during such difficult times—and to thereby overcome the myriad challenges associated with an economic crisis—is their human capital endowments. This observation is especially pronounced for necessity entrepreneurs, as they have few resources and capabilities to draw upon other than their human capital (Brewer & Gibson, 2014; Dencker & Gruber, 2015).

Human Capital Endowments and New Firm Performance

For founders, human capital establishes the capabilities they possess when adversity strikes, and can help them to adapt to and be resilient in the face of challenging conditions (Williams, Gruber, Sutcliffe, Shepherd, & Zhao, 2017). As research applying human capital theory (e.g. Becker, 1964; Mincer, 1974) to entrepreneurship has argued, a person’s education and work history influence the knowledge,

¹ Crises can emanate both from external events (e.g., an economic crisis) and from within the organization (e.g., corporate corruption) (Doern et al., 2019; Quarantelli, 1988). For a list of different types of crisis, see Pearson and Clair (1998: 60). Economic crises may be likened to other demanding, extreme settings studied in the management and organizational literatures, such as natural disasters or emergency situations (Klein et al., 2006; Weick & Sutcliffe, 2001).

skills, and perspectives that this person is able to draw on in an entrepreneurial activity (Dencker & Gruber, 2015; Tsui, Egan, & Xin, 1995). In effect, the founder's human capital shapes how the external context is perceived, how decisions are made, and how tasks are carried out in the newly founded firm (Åstebro & Thompson, 2011).

Several aspects of a founder's human capital have piqued the interest of entrepreneurship scholars (for reviews, see Marvel, Davis, & Sproul, 2016; Unger, Rauch, Frese, & Rosenbusch, 2011), key among them being the role of specific versus general human capital endowments. In this regard, Lazear's (2005) balanced skills theory posits that—with the exception perhaps of founders of high-tech ventures—entrepreneurs are jacks-of-all-trades, whose breadth of knowledge allows them to perform the varied requisite tasks associated with launching and running a new firm, and to achieve superior returns. Although this rationale may be true in the case of opportunity entrepreneurs, it does not always hold for the case of necessity entrepreneurs, who are often equipped with specific human capital because they tend to create firms in the industries in which they obtained their work experience prior to becoming unemployed (Nikiforou et al., 2019). Moreover, as we argue directly below, it is far from clear whether this widely used distinction and its emphasis on the benefits of general human capital applies to founders who set up a new firm during an economic crisis, as it seems that both specific and general human capital may provide key benefits to them.

Specific human capital endowments typically relate to knowledge of one's domain (Vakili & Kaplan, 2021), such as the industry or profession (vocation) within which a founder has studied and worked.² For example, vocational education provides ready-to-use practical knowledge and skills that prepare students to work in a specific domain (Bol, Ciocca Eller, van de Werfhorst, & DiPrete, 2019; OECD, 2010) (e.g., an individual trained to be a car mechanic opens an automotive repair shop). Individuals with vocational training can apply the skills they obtain through schooling when they enter the

labor market in their given vocation. Other types of education can also provide individuals with specific knowledge of a domain. For instance, a degree in accounting provides individuals with practical knowledge that they can use when they start a job in accounting or open an accounting firm. In a similar fashion, work experience in industries and professions serves to create specific human capital or increase the specific human capital in their area of educational expertise (e.g., electricians can learn how to perform tasks more quickly and efficiently through experience). That is, through on-the-job learning and experience (Mincer, 1974), individuals can acquire specific knowledge not only of the organization for which they work but also of the industry or occupation in which their experience occurs (Neal, 1995). As we will discuss in our hypothesis development section, industry- and profession-specific knowledge can be useful for new firm founders in several ways. For instance, this knowledge of the domain of specialization (Teodoridis, Bikard, & Vakili, 2019; Vakili & Kaplan, 2021) provides founders with a tacit understanding of how an industry or profession operates (Gimeno, Folta, Cooper, & Woo, 1997), which should lessen the liabilities of newness associated with the new firm (Stinchcombe, 1965).

In contrast, *general human capital endowments* involve concept-based schooling that equips individuals with broad-based knowledge and skills that are of use across settings (Hanushek et al., 2011). For instance, due to their broad-based education, individuals with general human capital may possess skills in math and sciences that enhance their analytic capabilities, and language and grammar skills that enhance their ability to communicate clearly and effectively, both orally and in written form. In the same manner, experience in a variety of industries provides founders with broad knowledge across these domains, allowing them, for instance, to use insights gained in one setting and apply it in another.

HYPOTHESIS DEVELOPMENT

We develop a set of hypotheses investigating how founder human capital endowments affect the performance of their newly launched firms during an economic crisis. Our theory development proceeds in two main steps. First, we investigate how specific or general human capital influences new firm performance during a crisis by discussing how these endowments may enable, or hinder, founders in

² Although industry-specific and occupation-specific human capital represent distinct forms of specific human capital, for the purposes of our study we assume that they have similar effects on new firm performance (an assumption we find to hold in unreported robustness tests of our main analyses), and draw on literature for both types of specific human capital to develop the logic for our hypotheses.

operating their new firms in such challenging conditions (Hypothesis 1). Notably, in developing and testing this hypothesis, we follow prior research in that we consider the crisis as a uniform economic shock that affects the whole economy—and therefore all new firms—in the same manner.

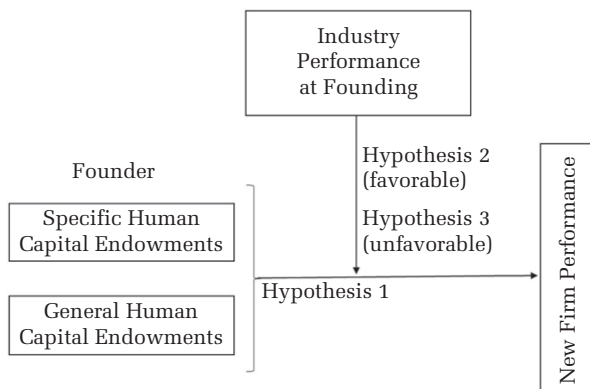
Second, we refine our theorizing to provide a more holistic perspective by considering that not all industries are equally affected by an economic crisis. This perspective not only enables us to develop an improved understanding of what an economic crisis means for new firms but also allows for closer examination of the role of specific and general human capital under different founding conditions—as the former endowments unfold their relevance within the specific setting in which the new firm is created. Following this broad reasoning, our theory development distinguishes more favorable industry settings (Hypothesis 2) from more unfavorable industry settings (Hypothesis 3) during the same economic crisis, and seeks to develop a refined understanding of when each of the two human capital endowments (specific or general) is more, or less, valuable for new firm performance. Hence, we develop the idea that there may not be “one” type of human capital (specific or general) that will lead to superior performance in an economic crisis. Rather, contingent on how severely the particular industry in which the new firm is located is affected, we argue that a founder’s given human capital endowment will be more- or less-conducive to how a new firm performs during a crisis. The conceptual framework guiding our research is depicted in Figure 1.

Specific and General Human Capital Endowments During an Economic Crisis

A severe economic downturn entails several critical challenges for founders that exacerbate the already existing challenges faced by new firms (Brüderl & Schüssler, 1990; Stinchcombe, 1965), wherein resource-constrained environments are less forgiving of managerial errors (Beard & Dess, 1981; Castrogiovanni, 1991). In particular, an economic crisis increases environmental uncertainty; generates ambiguity of cause, effect, and means of resolution; and leads to a heightened sense of urgency due to the changing economic conditions (Pearson & Clair, 1998; Wenzel, Stanske, & Lieberman, 2020). We investigate how a founder’s specific or general human capital influences new firm performance during an economic crisis by discussing how these endowments may enable, or hinder, the founder in operating a new firm in such challenging conditions. Although existing theory derived from noncrisis settings offers contradictory insights on whether it is specific or general human capital that provides a greater advantage to founders, two main arguments suggest that general human capital endowments may be more valuable than specific ones during a crisis.

First, a general education provides founders with strong conceptual foundations and abstract understanding of problem-solving processes that—akin to a meta-learning ability (Nersessian, 2002)—will help them in abstracting away from the complexity of particular contexts, in characterizing and understanding phenomena in general forms, and in looking for solutions from a general vantage point before diving into particular aspects in this regard. This abstract perspective-taking seems to be of particular relevance during an economic crisis, as the boundaries of this context are hazy (Merluzzi & Phillips, 2016) and may require founders to question the relevance of fundamental beliefs in their area of expertise, to let go of closely held assumptions, and to rethink how to maneuver in a domain that they thought they knew well. In particular, the ability to abstract away from the concrete situation will allow generalist founders to make greater sense of a dynamic context and unclear competitive conditions, rapid shifts in the supplier or distributor network (e.g., due to bankruptcies) and quickly changing customer preferences (e.g., for lower-cost products) that characterize an economic crisis. In sum, founders with general human capital are more likely “to see the forest for the trees,” and therefore have important advantages in generating solutions to the novel types of

FIGURE 1
Conceptual Framework: Human Capital, Founding Conditions, and New Firm Performance



problems they encounter during a crisis and managing situations they have not seen before (Epstein, 2019). On the contrary, **specialist founders may face difficulties in breaking out of their mental silos due to strong path dependencies created by acquiring knowledge in a specific domain, as research in the** neighboring literature on industry logics and change (Bettis & Prahalad, 1995; Sabatier, Craig-Kennard, & Mangematin, 2012) has emphasized for managers possessing industry-specific expertise.

Second, firms started during a crisis need to be flexible and adaptable given the challenging founding conditions. Compared to founders with specific human capital, those with general human capital can draw on a broader set of capabilities and, thus, respond more flexibly to challenging conditions (Brunello & Rocco, 2017; Golsteyn & Stenberg, 2017; Hanushek et al., 2011) that characterize crises, and be more adaptive to the dynamic crisis circumstances (Koerber & Oesch, 2019). In addition, akin to insights from research on technological innovation (Hargadon & Sutton, 1997), founders with general human capital have knowledge obtained from a greater number of domains, making it more likely that they can identify an appropriate solution to a given problem since their repertoire of existing solutions is larger.

These two arguments do not mean that specific human capital endowments lack value in an economic crisis. Such skills likely enable founders to identify specific gaps within their particular setting, absorb and utilize new knowledge, and employ critical problem-solving skills within their specialized activity. Moreover, research has shown that in non-crisis periods, specific human capital in the form of industry-specific experience has a significant positive relationship with several types of new firm performance (e.g., Bosma, van Praag, Thurik & de Wit, 2004; Colombo & Grilli, 2005; Cooper, Gimeno-Gascon, & Woo, 1994). At the same time, however, the aforementioned arguments emphasize **the highly challenging nature of an economic crisis**, and the resulting need to generate (creative) solutions to unforeseen organizational problems—an activity where founders endowed with general human capital should have a strong advantage due to their broad knowledge repertoire, conceptual reasoning, and adaptive thinking patterns.

Against the backdrop of these arguments, we expect that general human capital will be more valuable than specific human capital during a crisis—an argument that echoes findings in the strategy literature indicating that the flexibility of a firm's

capability structure is directly related to its ability to adapt and respond to exogenous shocks (e.g., Aggarwal, Posen, & Workiewicz, 2017). We therefore posit the following baseline hypothesis:

Hypothesis 1. During an economic crisis, founders with general human capital endowments will achieve stronger new firm performance than those with specific human capital endowments.

The Contingent Role of Industry Founding Conditions During an Economic Crisis

The previous section examined the role of specific and general human capital endowments in new firm creation in an economic crisis. **Up to this point, however, we have not considered differences within the economy—that is, that different industry sectors may be more, or less, affected by a crisis and, thus, present heterogeneous founding conditions.**

The idea that the industry context matters for firm performance is firmly anchored in the strategic management (e.g., Bain, 1956/2013; McGahan & Porter, 1997; Rumelt, 1991) and entrepreneurship (Dencker & Gruber, 2015; Robinson & McDougall, 1998) literatures. However, **what is missing from these literatures is a refined consideration of heterogeneity in the decline (growth) rates of different industry sectors and the notion that the value founders derive from their human capital is contingent on the performance of a new firm's industry sector in an economic crisis.** That is, while acknowledged (e.g., in studies controlling for environmental dynamism, such as Anwar et al. [2021]), a major shortcoming of existing research is that it has treated crises as external disruptions that **uniformly affect new firms.**

In order to develop our argument, it is useful to compare and contrast “extreme” circumstances that occur in a crisis. In particular, we examine how founders perform in industries with the **highest rates of growth (most favorable industry settings)**, as well as those with the **highest rates of decline (most unfavorable industry settings)**. In the most favorable industry settings, the characteristics of the crisis are expected to be attenuated, while in the most unfavorable industry settings, the challenges associated with a crisis will be in full force—and, as we argue below, these different characteristics will affect whether specific or general human capital will be relatively more beneficial in the respective industry setting. In developing our arguments, we *emphasize* those elements within the specific or general human capital endowments that should have the greatest relevance, while pushing to

the background elements that are of less relevance for the respective industry setting.

We begin by considering the most *favorable* settings during an economic crisis (Hypothesis 2), wherein industries likely do not experience substantial industry growth or decline. In such favorable settings, customers continue to purchase the offered goods and services, supply and distribution chains are largely intact, and competitors are known. As a consequence, founders will have fewer crisis-specific challenges (e.g., unclear cause–effect relationships, dwindling demand) to manage, as they strive to overcome liabilities of newness of their firms. Statement

We argue that favorable settings will allow founders with specific human capital to better maximize the value of their endowments. In particular, three main arguments suggest that founders with specific human capital endowments will outperform those with general human capital endowments in favorable settings.

First, evidence shows that specific knowledge of a sector or profession provides founders with ready-to-use skills, and can ease individuals' transition into the labor market and enhance their earnings (Golsteyn & Stenberg, 2017; Hanushek et al., 2011; OECD, 2010). These founders can enter a domain with relevant practical skills, and have the capability to run a new firm from the outset, with little need to engage in time-consuming trial-and-error learning. Thus, when compared to founders with general human capital endowments, they will have key advantages in understanding the setting in which they create a firm and in how to best serve their customers and compete against other firms. They will also know which suppliers and distributors to choose, and which ones to avoid, when running their firms. In other words, founders with specific human capital **will be less plagued by the liabilities of newness in new firm creation** (Stinchcombe, 1965) compared to founders who cannot draw upon this knowledge and who will be more prone to make errors (e.g., in choosing suppliers who are unable to deliver the right quantities of supplies, in the desirable quality, at the right time).

Second, because founders with specific human capital have amassed prior experience and social contacts in their domain, they should have more and **stronger social networks in the setting in which they create their firms than will founders with general human capital**—and thus they should have greater ability to draw on and benefit from such important resources in running their new firms (Stuart & Sorenson, 2005)—a particularly valuable asset given that external partners will question the solidity of

the newly established firm and its contractual promises (Stinchcombe, 1965). Moreover, because these founders are located in a favorable setting, one can expect that their social networks will be largely intact and therefore can provide the desired benefits.

Third, founders with specific human capital will **enjoy greater levels of customer trust** in their activity and its offerings compared to those with general human capital, as the specialists will be perceived as experts rather than novices (Stinchcombe, 1965; Welter & Smallbone, 2006). This trust is of particular importance for achieving revenues for new firms, as customers may question the offerings (e.g., their quality) when deciding from whom to buy their goods and services. Defence

These arguments do not mean that founders with **general human capital are unable to generate revenues** from their new firms in favorable industry settings during a crisis. As our rationale for Hypothesis 1 notes, such individuals have useful knowledge and skills that should serve them well in this regard. Yet, we argue that specific human capital endowments offer greater advantages in favorable industry settings in an economic crisis, given that many of the limitations engendered by such endowments (e.g., difficulty to break mental silos) do not matter as strongly in favorable settings.

Against this backdrop, we propose the following hypothesis:

Hypothesis 2. If located in a favorable industry setting during an economic crisis, founders with specific human capital endowments will achieve stronger new firm performance than those with general human capital endowments.

Follow theory

By contrast, in the most *unfavorable* (i.e., most sharply declining) industry settings during an economic crisis, we argue that founders with general human capital will generate stronger new firm performance compared to those with specific human capital (Hypothesis 3). Unfavorable industry settings during an economic crisis are strongly characterized by disrupted supply and distribution chains, deteriorating customer demand, and intensified competition. Perhaps the biggest challenge these unfavorable industries pose is their extreme uncertainty along a number of dimensions. Such a sharply declining setting is arguably novel, with preexisting plans ill-suited for operating, thus highlighting a clear-cut need for flexibility and adaptability, tolerance of ambiguity, and innovative solutions. As such, founders likely need to be both willing and able to modify their plans, while learning and adapting continuously. In effect, it seems that in

an unfavorable context, some of the advantages associated with specific human capital in more favorable settings (see Hypothesis 2) may turn into disadvantages, whereas the benefits that founders with general human capital can derive from their education and experience (see Hypothesis 1) may become even more important.

First, the repetitive motions and pattern-recognition skills of founders with specific human capital (Epstein, 2019) may not pay off when uncertainty is too high. As adversity can shatter fundamental assumptions people have for themselves and their environments (Haynie & Shepherd, 2011; Williams et al., 2017), founders with specific human capital may become stuck in their existing routines and focused mindset and, as a result, further exacerbate a given problem to the detriment of their business. More generally, in unfavorable settings these founders may adapt their new firm “on the fringes” to increase revenues without truly implementing more promising and needed solutions, such as pivoting their offering, target customers, or business models. For instance, barbers may be able to modify their prices in an attempt to increase customer demand, but their services and marketing efforts will be similar to what they offer in more favorable settings. In such a situation, founders with specific human capital can generate revenues, albeit to a much lesser extent than in normal periods.

Conversely, the discussed benefits of general human capital endowments (the ability to abstract away from the concrete situation and make use of their breadth of knowledge) gain in importance in highly unfavorable settings. In particular, founders possessing general human capital are less likely to have a narrow focus and deeply ingrained industry logic (Bettis & Prahalad, 1995) compared to those with specific human capital, and thus will be better suited to identify creative ways to meet customer demand in a rapidly changing context. They will also have access to a wider range of knowledge and heuristics that can help them escape traditional worlds of thought, develop new solutions, and implement them in an effective manner (Teodoridis et al., 2019; Vakili & Kaplan, 2021). In addition, generalist founders can incorporate ideas from other domains that can serve them well in the dramatically altered industry of their business activity. For example, because they possess knowledge across several domains, such founders may be able to draw on marketing techniques or suitable business models from multiple settings to address challenges posed by unfavorable contexts. In this vein, when standard operating procedures in an industry are not effective,

founders with general human capital can turn to other ways of operating based on their knowledge of such practices and procedures in other domains—in contrast to specialist founders whose knowledge and experience are restricted largely to one setting.

Second, although founders with specific human capital possess skills that are “ready to use” and thus could serve them well in unfavorable settings, these benefits may not transpire. In particular, as the sense of urgency and time pressure to act are higher than in unfavorable settings (Hermann, 1963; Pearson & Clair, 1998), specialists may be able to act faster than generalists due to the formers’ narrow focus and skillset, and thereby invest their time efficiently (Teodoridis et al., 2019). Yet, given that these specialist founders also have difficulty in abstracting away from their concrete business context—and given their relatively more limited knowledge repertoire to come up with solutions—they may enact solutions in a rapid manner but at the expense of implementing effective solutions adaptable to the quickly deteriorating industry setting.

Third, the transformation of unfavorable settings during a crisis arguably has a more deleterious effect on the endowments of specialists relative to generalists. In particular, because structures in unfavorable settings are disrupted considerably, the value of the social capital of founders with specific human capital is diminished to a greater extent than for founders with general human capital. In such circumstances, preexisting relationships may no longer exist or, if they do, may make it even harder for specialist founders to adapt to the quickly changing economic conditions because they are caught in the web of their social structures (Mitchell, Holtom, Lee, Sablinski, & Erez, 2001).

In light of these arguments, we expect that founders with general human capital will prove relatively more adept at addressing challenges of an unfavorable industry in an economic crisis than those with specific human capital. Hence, we predict:

Hypothesis 3. If located in an unfavorable industry setting during an economic crisis, founders with general human capital endowments will achieve stronger new firm performance than founders with specific human capital endowments.

DATA AND METHODS

Study Setting

We examine how a founder’s human capital affects new firm performance during an economic crisis

using two data sets—(a) survey data that we collected from a population of firms founded in Greece around the time of the Great Recession, and (b) secondary data on industry demand conditions obtained from the Greek Statistical Office. **By combining data from surveys of founders with external data on industry dynamics, we are able to more closely situate the firms in the crisis context in Greece at the time.**

Founders in our sample were necessity entrepreneurs—that is, individuals who transitioned from unemployment to entrepreneurship—who received financial assistance from a government program that was similar to those in the rest of Europe and the United States (Blanchflower, 2004). The setting and data are well-suited for exploring our research question. The crisis was pronounced in Greece during the period studied, with most industries experiencing downturns, many of them severe, yielding considerable variation in one of our key independent measures during the crisis context.

As is typically the case in necessity entrepreneurship (Brewer & Gibson, 2014), new firms in our sample are “ordinary” ones that operate in a variety of mundane industries (Aldrich & Ruef, 2018; Shepherd, 2020). As such, the founder’s human capital is one of the key resources and capabilities available in these firms, a useful component in being able to assess our hypotheses. Moreover, given that the founders were coming from the ranks of the unemployed, they had little financial capital upon which to draw, thereby further highlighting the importance of their human capital in this context. Nevertheless, there is considerable variation in education and experience endowments among founders in our sample.

Survey Data

Survey design and response rate. We collected data from a survey administered in 2013 to formerly unemployed founders aged 22–46 who created their businesses in Greece at the time of the Great Recession, namely in 2008 or 2009. The respondents were participants in a Greek national employment agency program that sought to help the unemployed transition into entrepreneurship. In order to aid this transition, the employment agency provided 18,000 EUR to participants in installments over a one-year period. Monetary benefits were also given to the firms that continued their business activity beyond the first year of operation. In particular, 5,000 EUR were provided for the second year of operation, and 1,000 EUR for the third year of operation,

incentivizing founders to continue with their entrepreneurial activity throughout the crisis.

We developed a structured questionnaire (survey) to collect data for our study. Questions were generated from a review of the literature, feedback from pilot tests, as well as discussions with employees of the employment agency and with two dozen necessity entrepreneurs from Greece. The questionnaire was six pages long and included multiple types of questions, such as multiple-choice, yes–no, and Likert scales. It also included open-ended questions that accompanied some of the multiple-choice questions.

The employment agency contacted a total of 987 program participants using the contact information entrepreneurs provided when they applied for funding and registered their business—namely the addresses and telephone numbers of the founder and the business. The personal contact details of the necessity entrepreneurs proved particularly useful when respondents had terminated their business activity before the time of data collection. Of the 987 individuals in the program, 544 elected to participate in our study (a response rate of 55.12%). During individual, personal meetings with program agents, these individuals filled out surveys. We discarded 44 responses due to missing information on key variables, giving us a sample size of 500 founders.

Despite the high response rate, we tested for non-response bias by comparing respondents and nonrespondents. We find our sample to be representative on all dimensions we could assess, such as founder gender and age. Furthermore, in order to mitigate survival bias we also gathered responses from necessity entrepreneurs whose firms had failed—an important feature of our study.

Data from the Statistical Office

We supplemented our survey data with information on industry demand conditions obtained from the Greek Statistical Office, which collects a variety of statistics to convey to Eurostat (the European Union’s repository for statistics of its member states). In particular, the Greek Statistical Office provided us with data on the yearly revenues of each industry that we used to calculate industry growth and decline rates for the purposes of testing Hypotheses 2 and 3.

Measures

Dependent variable. Our dependent measure is the yearly sales revenues generated by a new firm—a

common outcome in research on new firm performance (Eisenhardt & Schoonhoven, 1990; Gruber, MacMillan, & Thompson, 2008; Murphy, Trailer, & Hill, 1996). From an accounting perspective, revenues are straightforward (Feeser & Willard, 1990), and are particularly meaningful as a performance measure during economic crisis, since achieving sales indicates that a firm attracted customers and met market demand through its offerings. We created this measure based on respondents' reports of the *total revenues* (in EUR) generated by their firms in a given year.

Although our dependent measure may not be ideally suited for examining early-stage performance of high-potential high-tech startups that rely on funding for many years before making their first sale, this should not be an issue with our sample, as we studied necessity entrepreneurs who founded mainstream businesses in "mundane" industries, rather than "unicorns" or "gazelles" (Aldrich & Ruef, 2018; Dencker, Gruber, & Shah, 2009; Shepherd, 2020). The type of "ordinary" new firms that we study (need to) generate revenues from the outset, as necessity entrepreneurs must make a living for themselves and their families. In other words, our revenue measure reflects a major achievement for these entrepreneurs.

Independent variables. Our independent variables include measures of *specific and general human capital endowments*, as well as *founding industry conditions* (i.e., industry decline and growth rates capturing demand conditions) related to each new firm.

To generate the specific and general human capital endowments measures, we sought to be conservative in our specifications, consistent across the two types, while ensuring *that we captured their essence*. In order to do so, we combined information on the founder's education type and work experience, as these are the main avenues whereby individuals obtain human capital (Mincer, 1974). With respect to education, a key distinction for our study is between degrees in an applied field versus degrees that could be used in multiple industries and professions. As such, *we drew on research in labor economics to differentiate between founder education type: vocational or general* (Bol et al., 2019; Hanushek et al., 2011). As is the case in many European countries, students in Greece choose between vocational and general education upon completion of lower secondary schooling (roughly at age 15) (CEDEFOP, 2014). Those students pursuing a vocational education path obtain practical training in a specific, applied area of study (e.g., auto mechanics

and hairdressing) that typically involves an apprenticeship (i.e., vocation-specific work experience obtained while the individual was in the education program). By contrast, those choosing the general education route follow a pathway typical of many industrialized societies, namely entering high school with the possibility of continuing on to universities for bachelor's and higher degrees. These founders take coursework in a wide array of subjects, thereby developing a general skill set.

To create our independent human capital measures, we combine our data on founder education (i.e., applied vs. general education) with information on the work experience of the founder prior to becoming a necessity entrepreneur—while considering whether the founder applied this prior specialized experience in their new firms.

Founders possess specific human capital if they have (a) knowledge obtained from vocational education and work experience, both of which are specific to the domain in which their firm was founded (e.g., an individual who has education and work experience in auto mechanics founds an auto repair shop); or (b) knowledge obtained from general education and work experience, both of which are specific to the domain in which their firm is founded (e.g., an individual who has education and experience in the accounting field founds an accounting firm). Because founders with a vocational degree typically obtain work experience through internships during schooling, our measure of specific human capital includes them (i.e., vocationally trained individuals who found a firm in their respective vocations without having amassed related work experience *after* schooling). The results are nevertheless robust when these founders are excluded from the specific human capital measure. *In addition, in unreported analyses we test our assumption that occupation-specific and industry-specific human capital operate in a similar fashion, and uncover that our main findings are robust across these two forms of specific capital.*

Founders possess *general human capital* if they have obtained a general education degree and have work experience that does not include industry-specific experience—that is, experience in the domain in which they created their business. We include two dummy measures of human capital in the result Tables 2 and 3: *specific human capital* and *other human capital* (i.e., those who possess neither specific nor general human capital). This allows us to provide the comparison between the two types of human capital easily and visibly, as the coefficient

on the specific human capital measure reflects differences with respect to the omitted dummy category of general human capital.

Our moderator variables capture the demand conditions in the 15 industries in our sample in the year in which the new firm was created (2008 or 2009) based on European Community Nomenclature of Economic Activities (NACE) Rev. 2 (letter-level) codes: (A) agriculture, forestry, and fishing; (C) manufacturing; (F) construction; (G) wholesale and retail trade, and repair of motor vehicles and motorcycles; (H) transportation and storage; (I) accommodation and food service activities; (J) information and communication; (K) financial and insurance activities; (L) real estate activities; (M) professional, scientific and technical activities; (N) administrative and support service activities; (P) education; (Q) human health services and social work activities; (R) arts, entertainment, and recreation; and (S) other services. Six industries—(B) mining and quarrying; (D) electricity, gas, steam, and air-conditioning supply; (E) water supply, sewerage, waste management, and remediation; (O) public administration and defense, compulsory social security; (T) activities of households as employers; and (U) activities of extraterritorial organizations and bodies—out of the 21 total NACE industries are not represented in our sample. Most unrepresented industries fall well beyond the purview of what is legal or feasible for most necessity (and opportunity) entrepreneurs. For instance, industries such as (O) public administration and (U) extraterritorial organizations (such as the United Nations) are highly restricted, while others, such as (B) mining, (D) electricity supply, and (E) water supply, likely require substantial capital outlays and licenses—thereby speaking to the generalizability of our findings.

With the data obtained from the Greek Statistical Office on yearly revenues, we calculated industry growth and decline rates for the industries in our sample. These rates allow us to depict the demand conditions of the industry in dynamic terms—and to do so in a way that is comparable across industries (Wu, 2013). **Using this external data, we created two dichotomous measures to capture whether the new firm's industry was among the most favorable, or most unfavorable—with the measures based on the number of observations in the sample in the 15 industries that we observe, and taking into account that firms could be founded in either 2008 or 2009.** We considered cutoff points equivalent to one standard deviation above and below the mean levels, which coincided with being in roughly the top 10th

percentile of industry growth (most favorable industries), or the bottom 10th percentile in industry decline (the most unfavorable industries). The top 10th percentile of growth industries includes, for instance, information and communication; health; and administration and support service activities, whereas the bottom 10th percentile in decline includes, for instance, manufacturing; construction; financial and insurance activities; and professional services. In other unreported tests, we consider other cutoff points (e.g., 15% and 25%), as well as replacing the dummies with continuous and quadratic measures, and find that results are robust.

Control variables. We control for a variety of factors at the individual, firm, industry, and regional levels that may influence new firm performance. In terms of demographic factors, we account for four variables that are common in research on how founders affect new firm outcomes (e.g., Dencker & Gruber, 2015; Lévesque & Minniti, 2006): gender, coded 1 if the founder was *female*, and 0 if he was male; the *founder's age* at time of firm creation (ranging from 22 to 46 years in our sample); marital status (1 = *married*, 0 = not married); and *number of children*.

Prior research has highlighted the important role of human capital in new firm performance (e.g., Brüderl, Preisendörfer, & Ziegler, 1992; Dencker et al., 2009; Wennberg, Wiklund, DeTienne, & Cardon, 2010). We control for several such measures: years of education, years of industry-specific experience, entrepreneurial experience, managerial experience, and unemployment duration. The *years of education* measure was created from respondent reports of the highest degrees they had received. Respondents were also asked whether they had any work experience, and, if so, in which sectors and for how long. From this information, we created a measure of *years of industry-specific experience* (i.e., experience specific to the industry in which the new firm was created). Because prior experience in creating a firm might affect new firm performance (Delmar & Shane, 2006; Gruber et al., 2008), we use a dummy variable to capture whether the founder possessed *entrepreneurial experience* (1 = yes, 0 = no). We also control for prior *managerial experience* using a 5-point Likert scale, as this type of experience provides founders with knowledge about “what” tasks need to be done and “how” they need to be done in a new firm (Dencker & Gruber, 2015). In addition, because human capital can depreciate due to lack of use (Mincer & Ofek, 1982), and because our sample includes founders who were

unemployed prior to launching their firms, we control for unemployment duration. Founders were asked to select time spent out of work prior to firm creation: less than 1 month, 1–2 months, 3–4 months, 5–6 months, 7–9 months, 10–12 months, 13–24 months, 25–36 months, and more than 36 months. From these responses, we created a dummy measure that captured whether the founders had been long-term unemployed, namely for one year or longer, (1 = long-term unemployed, 0 = short-term unemployed). At the individual level, we also control for founder *self-efficacy*, with this measure created based on respondent reports to a 5-point Likert-type scale (Chen, Gully, & Eden, 2001). Example items for the self-efficacy measure include: “I will be able to successfully overcome many challenges” and “Even when things are tough, I can perform quite well.”

At the firm level, we control for the size of the initial *investment* based on responses to the following eight categories (measured in EUR): no investment¹ 1–2,500; 2,501–5,000; 5,001–15,000; 15,001–30,000; 30,001–50,000; 50,001–100,000; more than 100,000. We also control for founding *partners*, coded as 1 if the respondent founded a firm with a partner and 0 otherwise. Given that market choice is critical to new firms (Abell, 1980; Gruber et al., 2008), we control for the firm’s *target market*, coded as 1 if the market was local and 0 otherwise (i.e., the national or international market), and the type of *target customers*, coded as 1 for individual consumers and 0 otherwise (i.e., business-to-business or business-to-government firms). Finally, we control for whether the founder considered alternative business activities prior to creating the new firm (Gruber et al., 2008). This *alternatives considered* measure is coded 1 if the founder did contemplate an alternative industry (or industries) for establishing the new firm, and 0 otherwise.

We control for the firm’s *industry* using a set of variables capturing the 15 industries of the new firms in our sample, as industry effects (beyond demand conditions) account for a significant portion of firm outcomes (McGahan & Porter, 1997). At the regional level, we control whether the firm was located in *mainland* Greece (coded as 1), and zero otherwise.

Finally, as part of our event history analysis (discussed below), we control for the number of years for which the new firm had been in existence with two firm duration variables (*second year* and *third year*), whose coefficients reflect the differences in revenues for a firm’s second and third year of

existence (for those firms that survived for that period) compared to its first year of existence (the omitted category).

Analytic methods. Like other studies of new firm performance (e.g., Dencker & Gruber, 2015), our data set contains annual records of firms founded by individuals. We analyze a yearly, unbalanced panel, where the number of observations a firm contributes is a function of the time it has been in existence. The maximum number of observations a given firm could contribute was three, given that we collected up to a maximum of three years of revenues, based on the date of firm creation. For example, firms that survived only one year contribute one observation to our data set, whereas firms that survived three years contribute three observations.

Because of monetary incentives provided by the employment agency for the first three years of new firm creation—coupled with incentives to continue the business due to the lack of (or nonexistence of) paid job alternatives during the crisis—we anticipated and observed a limited number of firms going out of business within this three-year timeframe. Concretely, one fifth of the new firms in our sample failed, and we observe a significant uptick in failure once benefits provided to founders ended. Hence, a key advantage of our sample is that it includes not only surviving firms but also those that failed at any point in time before data collection.

An added benefit of the event history empirical approach is that it allows us to address potential problems of right-censoring and survival bias (Yamaguchi, 1991). As a result, the unit of analysis is the firm-year, with the 500 new firms in the sample contributing a total of 1,463 firm-years. We use ordinary least squares (OLS) regression methods, with robust (Huber–White) standard errors—clustered by firm (founder)—to analyze revenues generated by the new firms in each year that the firms were in existence.

RESULTS

Descriptive Statistics

Table 1 presents the descriptive statistics and correlation matrix for our variables. To facilitate interpretation, the statistics were calculated based on the founder, rather than the firm-year (i.e., they were calculated based only on one observation per founder, rather than on multiple observations of the firm from the event history files). As noted above, firms in our sample operate in a variety of “mundane” industries, and are thus representative of the majority of firms in an economy.

TABLE 1
(Continued)

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
25. Construction	-0.01	0.03	-0.01	0.01	-0.02	-0.05	1												
26. Commerce	0.04	0.17	0.10	0.03	-0.08	-0.19	-0.17	1											
27. Transportation and storage	0.04	-0.09	0.00	0.00	-0.01	-0.03	-0.02	-0.09	1										
28. Accommodation and food service	0.02	-0.07	0.08	0.01	-0.02	-0.05	-0.05	-0.20	-0.03	1									
29. Information and communication	0.02	-0.13	-0.07	-0.07	-0.01	-0.04	-0.03	-0.13	-0.02	-0.04	1								
30. Finance and insurance	-0.02	0.06	-0.05	0.05	-0.01	-0.02	-0.02	-0.08	-0.01	-0.02	-0.02	1							
31. Real estate	0.03	0.04	0.05	-0.06	-0.01	-0.01	-0.01	-0.05	-0.01	-0.01	-0.01	-0.01	1						
32. Professional activities	0.01	-0.05	-0.02	-0.08	-0.04	-0.09	-0.08	-0.34	-0.04	-0.10	-0.06	-0.04	-0.03	1					
33. Administration and support	-0.08	0.02	0.01	0.05	-0.01	-0.02	-0.02	-0.08	-0.01	-0.02	-0.02	-0.01	-0.01	-0.04	1				
34. Education	0.03	0.08	0.05	-0.02	-0.02	-0.04	-0.03	-0.14	-0.02	-0.04	-0.03	-0.02	-0.01	-0.07	-0.02	1			
35. Health and social work	-0.02	-0.04	-0.07	0.03	-0.03	-0.07	-0.06	-0.24	-0.03	-0.07	-0.04	-0.03	-0.02	-0.12	-0.03	-0.05	1		
36. Arts and entertainment	-0.02	-0.09	0.04	-0.01	-0.01	-0.03	-0.03	-0.13	-0.02	-0.04	-0.02	-0.02	-0.01	-0.06	-0.02	-0.03	-0.04	1	
37. Other services	-0.01	-0.09	-0.10	0.02	-0.03	-0.08	-0.07	-0.30	-0.04	-0.08	-0.06	-0.04	-0.02	-0.14	-0.04	-0.06	-0.10	-0.05	1

Note: n = 500

Human capital endowments and new firm performance during an economic crisis. Table 2 presents results from our OLS analyses of revenues generated by the new firms in our sample. Model 1 estimates a baseline model containing only the controls, and Model 2 adds our first independent variable, *specific human capital*. In particular, in Model 2 of Table 2, we examine the differences in new firm performance for founders with specific human capital endowments relative to founders with general human capital endowments. Consistent with Hypothesis 1, we find that founders with specific human capital create firms that significantly underperform versus firms founded by those with general human capital ($b = -9,765$ EUR, $p < .05$).

The contingent role of founding conditions during an economic crisis. Thus far, our examination has not considered heterogeneity in industry conditions during a crisis, particularly whether new firms are founded in favorable or unfavorable industry settings. As shown in our Methods section, industries diverged in terms of their performance during a crisis—with the “best-performing” industry growing at a rate of 5.56%, and the “worst-performing” one facing a steep decline of 38.03% (average decline across all industries: -10.51%). We make use of this heterogeneity in order to test Hypotheses 2 and 3.

In Model 3 of Table 2, we enter the favorable and unfavorable industry dummies, and in Model 4 we explore the interaction of a favorable industry setting and human capital endowments on new firm performance. Consistent with Hypothesis 2, results indicate that for new firms located in the most favorable industries, founders with specific human capital significantly outperform those with general human capital ($b = 36,107$ EUR, $p < .01$). Model 5 of Table 2 introduces the moderation between unfavorable industry conditions and human capital. Contrary to Hypothesis 3, we find that in unfavorable settings, founders with specific human capital create firms that significantly outperform those created by founders with general human capital ($b = 21,641$ EUR, $p < .05$), a result that holds in the full model that includes both interactions (Model 6). Marginal effects, calculated using the *margins* command in Stata (Mitchell, 2012), provided in Figures 2 and 3 highlight these different patterns, showing that in most industries during a crisis, firms created by founders with general human capital substantially outperform those founded by individuals with specific human capital, whereas in the most extreme industry settings—both favorable and unfavorable—the opposite pattern holds.

TABLE 2
Founder Human Capital, Founding Conditions, and New Firm Performance

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	-12,137.79*** (2,694.88)	-12,838.20*** (2,813.94)	-12,804.16*** (2,821.12)	-13,263.21*** (2,863.34)	-13,154.52*** (2,853.65)	-13,619.55*** (2,896.13)
Founder age	-495.91 (308.90)	-647.58* (314.43)	-654.77* (314.85)	-696.55* (319.35)	-637.07* (314.68)	-671.65* (318.24)
Married	4,614.08 (3,719.55)	4,776.25 (3,549.79)	5,066.26 (3,669.50)	4,947.35 (3,627.39)	5,052.51 (3,671.73)	4,883.46 (3,621.87)
Number of children	441.51 (2,128.49)	623.91 (2,036.95)	573.63 (2,059.16)	641.97 (2,050.30)	731.46 (2,032.97)	769.18 (2,022.90)
Years of education	1,535.30*** (445.84)	1,713.78*** (468.36)	1,755.81*** (467.78)	1,867.93*** (479.85)	1,833.39*** (477.94)	1,938.44*** (489.62)
Years of industry experience	916.97* (371.59)	1,099.58** (388.54)	1,063.67** (388.80)	1,166.82** (390.76)	1,063.06** (388.94)	1,168.07** (390.73)
Entrepreneurial experience	9,937.30† (5,296.47)	9,135.66† (5,450.00)	9,204.94† (5,457.83)	7,934.66 (5,160.74)	8,937.21 (5,465.29)	7,663.77 (5,181.04)
Managerial experience	1,506.96 (1,125.16)	1,615.46 (1,129.60)	1,543.70 (1,134.65)	1,498.46 (1,128.53)	1,558.90 (1,137.18)	1,529.38 (1,131.87)
Long-term unemployed	1,556.07 (3,573.18)	1,439.29 (3,555.01)	1,510.96 (3,573.34)	1,229.90 (3,530.16)	1,481.63 (3,564.50)	1,237.85 (3,520.80)
Self-efficacy	1,083.70 (2,324.66)	1,042.14 (2,340.15)	1,159.05 (2,350.32)	1,616.38 (2,332.18)	948.12 (2,352.65)	1,353.98 (2,335.85)
Investment	10,284.75*** (1,405.81)	10,255.79*** (1,415.28)	10,203.89*** (1,430.44)	9,934.10*** (1,375.63)	10,232.52*** (1,433.87)	9,958.02*** (1,379.04)
Partner	20,136.32** (6,119.79)	20,272.25*** (6,139.47)	20,271.89** (6,151.45)	20,250.95*** (6,096.27)	20,146.20** (6,168.10)	20,122.90** (6,112.13)
Target market	-5,813.09† (3,492.28)	-5,931.09† (3,505.99)	-6,374.67† (3,545.12)	-6,345.66† (3,447.35)	-6,652.99† (3,543.19)	-6,676.02† (3,444.55)
Target customers	6,103.09** (2,140.99)	5,956.02** (2,092.34)	6,157.26** (2,115.13)	6,451.30** (2,135.42)	6,136.97** (2,138.22)	6,368.31** (2,146.80)
Alternatives considered	11,010.40* (4,767.20)	10,427.11* (4,647.30)	10,342.01* (4,646.61)	10,542.01* (4,662.83)	10,161.90* (4,643.45)	10,361.71* (4,654.98)
Mainland	10,066.62*** (2,409.17)	9,929.30*** (2,387.83)	9,764.66*** (2,396.12)	9,928.75*** (2,417.62)	9,862.03*** (2,407.05)	10,076.06*** (2,437.25)
Firm duration: second year	6,459.03* (2,773.56)	6,483.94* (2,766.78)	6,484.02* (2,766.40)	6,502.12* (2,757.47)	6,488.32* (2,765.57)	6,508.38* (2,756.69)
Firm duration: third year	7,314.35* (2,929.66)	7,376.49* (2,922.95)	7,367.77* (2,923.98)	7,373.98* (2,913.32)	7,381.66* (2,924.14)	7,393.43* (2,912.93)
Other HC		-4,158.07 (5,394.03)	-4,313.89 (5,425.34)	-6,569.04 (5,796.38)	-5,741.47 (5,773.22)	-8,085.01 (6,174.05)
Specific HC		-9,764.59* (4,902.91)	-9,954.83* (4,910.83)	-15,334.59** (5,233.18)	-11,230.62* (5,216.96)	-17,185.68** (5,581.35)
Favorable ind.			11,686.81** (3,747.60)	-11,192.32 (9,645.18)	10,959.76** (3,727.61)	-13,236.98 (9,866.35)
Unfavorable ind.			6,715.63† (3,853.81)	5,711.03 (3,818.80)	-15,414.89† (9,091.43)	-19,748.82* (9,262.64)
Favorable ind. × other HC				8,629.40 (13,734.04)		9,515.21 (13,847.33)
Favorable ind. × specific HC				36,107.32** (11,987.74)		37,383.17** (12,137.35)
Unfavorable ind. × other HC					25,535.11* (12,392.26)	26,472.47* (12,592.70)
Unfavorable ind. × specific HC					21,640.93* (8,730.14)	26,372.54** (9,000.89)
Industry controls	Included	Included	Included	Included	Included	Included
Constant	-31,262.74 (20,531.33)	-23,769.60 (19,598.93)	-23,750.60 (19,617.30)	-21,390.11 (19,512.33)	-23,092.10 (19,626.99)	-20,382.52 (19,506.84)
Observations	1,463	1,463	1,463	1,463	1,463	1,463
R-squared	0.26	0.26	0.26	0.27	0.26	0.27

TABLE 2
(Continued)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>F</i>	15.32	14.31	14.68	13.45	13.88	12.72
Adjusted- <i>R</i> squared	0.24	0.24	0.24	0.25	0.24	0.25

Note: Robust standard errors in parentheses. HC = human capital.

+ $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Overall, these results offer important qualifications to our earlier findings capturing the “average” effects of specific and general human capital during an economic crisis (see baseline analysis, Hypothesis 1). Once the contingent role of industry performance is taken into account, the aforementioned “baseline” insight that general human capital endowments are more conducive to greater new firm performance than are specific endowments in a crisis can be strongly misleading, given that in both favorable and unfavorable industry settings founders with specific human capital achieve stronger performance than those with general human capital.

The results presented in Table 2 also allow us to specify the economic relevance of different human capital-industry configurations. Figure 4 depicts estimated performance outcomes for new firms launched by founders with different human capital endowments in different industry settings, which were calculated using the *estsimp reg* command in Stata. First, these results show that the performance

differences between founders with specific or with general human capital are meaningful in terms of their size. Second, these results also allow us to get at the intriguing—and typically elusive—component of “entrepreneurial luck” in new firm performance outcomes. As not all crises will impact the same industry sectors in the same way (e.g., a financial crisis like that seen in the 2000s relative to the COVID-19 crisis in the 2020s), it is difficult (if not impossible) to predict which industries will be more, or less, affected by a crisis. A founder thus also has to be lucky, as one needs to have the right human capital endowments for the setting in which one is located during times of adversity—in short, being the right person at the right place at the right time.

Finally, it is worth noting that the estimations provided in Figure 4 illustrate how industry effects shape the value creation potential of a firm’s resources (as evidenced by founder human capital): whereas the lowest performance outcomes are roughly 32,000 EUR for founders with specific

Strong

FIGURE 2

Interaction Effect of Favorable Industry Setting with Specific and General Human Capital

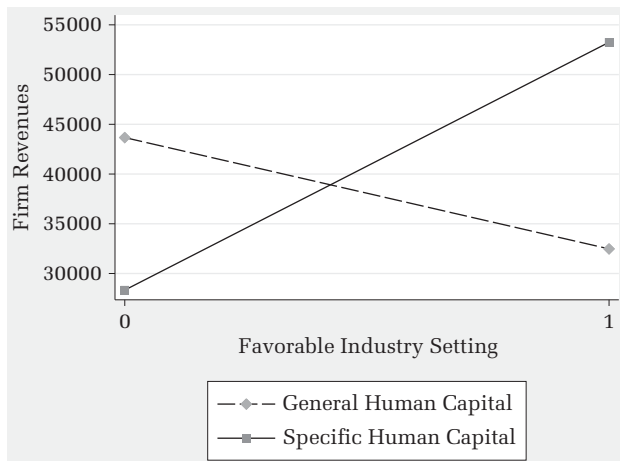


FIGURE 3

Interaction Effect of Unfavorable Industry Setting with Specific and General Human Capital

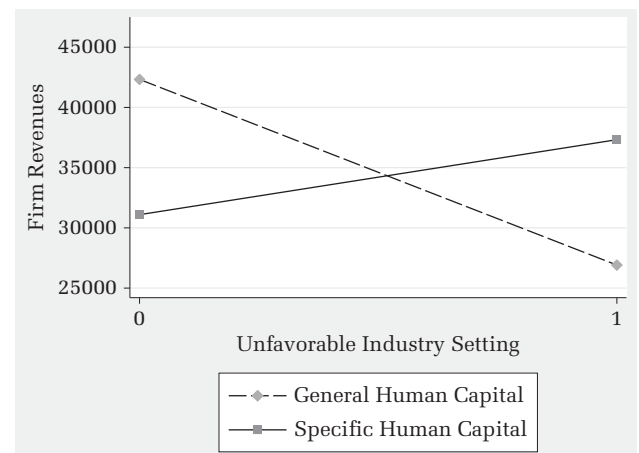


FIGURE 4
The Value of Founders' Human Capital
Endowments in Different Industry Founding
Conditions—A Contingency Perspective

		Industry Founding Conditions		
		Unfavorable	Average	Favorable
Founder	Specific Human Capital Endowments	(3) 34350 EUR	(4) 31954 EUR	(1) 51886 EUR
	General Human Capital Endowments	(6) 25151 EUR	(2) 41472 EUR	(5) 31488 EUR

Note: Numbers in parentheses denote rank-ordering of the predicted revenue outcomes per case.

human capital (in the average crisis setting) and 25,000 EUR for those with general human capital (in an unfavorable crisis setting), the highest performance outcomes are 62% greater for specialists (in a favorable crisis setting) and 65% greater for generalists (in the average crisis setting).

Robustness tests. An interesting question arising from our study is whether the patterns we observe hold when considering only a founder's education. So far, we have conceptualized specific and general human capital endowments capturing a person's education and work experience. Nevertheless, an individual's education may be the most critical human capital endowment for the youngest founders who just finished their schooling when the economic crisis hit. We thus ran a robustness test and examined the effect of education type (general vs. vocational) on new firm performance (Table 3, Model 1). Similar to the results of the human capital endowments in our main analysis (composed of founder education and work experience), firms founded by individuals possessing a general educational degree outperform firms founded by individuals with a specialized (vocational) educational degree. Furthermore, in Model 2 (Table 3), we examine how firms founded by vocationally educated founders perform relative to those possessing general education, in favorable or unfavorable industry settings. Consistent with our main findings, the firms created by the former significantly outperform those created by the latter in extreme settings.

As we noted, the value of planning for necessity entrepreneurs in a crisis may be moot since

conditions at founding can change dramatically in a short time period. We therefore considered how industry dynamics influence firm performance. To do so, we considered the impact of substantial changes in industry growth and decline in the year after the new firm was created compared to the year it was founded. This means that, even though founders may have been lucky in that they created their firms in favorable industries, they may have ended up having to operate their businesses in unfavorable settings (and vice versa). To create this measure, we followed the same logic used to create the favorable and unfavorable industry measures. In particular, we created a dummy variable of *industry volatility* that was coded 1 if the industry of the new firm was in the 10th percentile in the change in growth and decline (in the year after the new firm was created), and 0 otherwise. This measure thus captures the most positive or negative changes in the various sectors, although most of the industries that we coded as being volatile shifted from favorable to unfavorable settings. The results, presented in Model 4 of Table 3, indicate that founders with specific human capital are able to manage the challenges posed by volatile industry settings better than founders with general human capital.

DISCUSSION

We began our study by observing that necessity entrepreneurship may be a beacon of hope for individuals during times of crisis since their self-employment activity could allow them to participate in the economy and to generate an income. Our findings allow us to paint a holistic picture of the prospects that specialist versus generalist founders have when managing new firms during an economic crisis: by allowing for heterogeneity in both founder human capital and industry conditions, our results reveal that although general human capital endowments provide the greatest benefits on average during an economic crisis, specific human capital endowments lead to stronger new firm performance in extreme settings, as well as in the most dynamic ones.

As we discuss below, the findings of our study offer novel insights for research on the role of human capital in entrepreneurship, resilience in the face of economic crises, and necessity entrepreneurship, as well as having practical implications for policymakers and for necessity entrepreneurs looking to new firm creation as a way to make a living during an economic crisis.

TABLE 3
Extensions and Robustness Tests

Variables	Model 1	Model 2	Model 3	Model 4
Female	-12,315.98*** (2,713.58)	-13,062.49*** (2,779.29)	-12,822.56*** (2,815.17)	-12,740.54*** (2,809.91)
Founder age	-692.21* (320.67)	-759.21* (324.17)	-649.30* (314.48)	-693.59* (316.43)
Married	4,239.62 (3,770.41)	3,738.68 (3,757.18)	4,787.29 (3,550.72)	4,976.00 (3,583.00)
Number of children	935.18 (2,084.22)	1,197.45 (2,076.66)	624.93 (2,037.81)	396.02 (2,050.83)
Years of education	1,787.71*** (469.10)	2,026.00*** (500.77)	1,714.27*** (468.47)	1,831.87*** (482.32)
Years of industry experience	940.37* (376.14)	1,038.11** (380.12)	1,095.87** (389.36)	1,104.74** (388.84)
Entrepreneurial experience	9,803.75 [†] (5,365.59)	8,906.35 [†] (5,322.58)	9,159.93 [†] (5,440.25)	9,599.94 [†] (5,398.42)
Managerial experience	1,211.70 (1,124.76)	981.26 (1,101.87)	1,610.44 (1,130.27)	1,623.62 (1,128.66)
Long-term unemployed	1,437.30 (3,507.19)	1,471.98 (3,516.27)	1,442.86 (3,556.51)	1,569.20 (3,531.53)
Self-efficacy	974.24 (2,307.14)	1,062.15 (2,290.78)	1,052.90 (2,345.11)	791.68 (2,359.35)
Investment	10,235.43*** (1,418.07)	10,196.95*** (1,416.51)	10,249.43*** (1,416.35)	10,143.90*** (1,403.06)
Partner	20,685.85*** (6,082.69)	19,444.87** (6,243.25)	20,282.10*** (6,143.96)	20,601.53*** (6,150.82)
Target market	-5,830.31 [†] (3,511.86)	-5,991.81 [†] (3,459.39)	-5,939.08 [†] (3,502.82)	-6,223.96 [†] (3,513.67)
Target customers	5,832.17** (2,185.44)	6,134.29** (2,190.71)	5,955.44** (2,093.23)	5,504.85** (2,081.69)
Alternatives considered	11,622.37* (4,795.52)	11,775.05* (4,760.41)	10,423.55* (4,646.72)	10,419.61* (4,629.82)
Mainland	10,076.96*** (2,444.86)	9,587.27*** (2,436.92)	9,916.73*** (2,387.20)	9,510.99*** (2,407.87)
Firm duration: second year	6,463.42* (2,759.40)	6,466.12* (2,749.26)	6,682.22* (3,040.33)	6,708.25* (3,036.98)
Firm duration: third year	7,322.50* (2,917.79)	7,324.95* (2,909.58)	7,575.69* (3,180.38)	7,508.02* (3,175.04)
Vocational education	-9,440.44** (2,945.87)	-14,159.75*** (3,772.79)		
Favorable industry	11,113.10** (3,857.02)	-1,353.56 (5,345.31)		
Unfavorable industry	4,508.95 (4,068.19)	-2,752.84 (4,296.13)		
Favorable ind. × vocational education		23,679.94** (7,213.36)		
Unfavorable ind. × vocational education		14,834.48* (6,981.97)		
Other HC			-4,140.19 (5,394.45)	-6,160.47 (5,880.81)
Specific HC			-9,743.94* (4,897.85)	-14,549.64** (5,265.41)
Volatility			-947.68 (3,588.64)	-27,486.92** (10,213.94)
Ind. volatility × other HC				19,443.44 [†] (10,771.43)
Ind. volatility × specific HC				34,652.94** (11,176.56)

TABLE 3
(Continued)

Variables	Model 1	Model 2	Model 3	Model 4
Industry controls	Included	Included	Included	Included
Constant	-20,429.78 (19,947.19)	-16,344.01 (19,815.69)	-23,872.11 (19,634.65)	-19,199.38 (19,514.72)
Observations	1,463	1,463	1,463	1,463
R-squared	0.26	0.27	0.26	0.26
F	14.82	13.56	13.90	13.11
Adjusted-R squared	0.24	0.25	0.24	0.24

Note: Robust standard errors are in parentheses. HC = human capital.

[†] $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Implications for Theory

Our study provides several new insights for our understanding of entrepreneurship. First, it offers significant theoretical insights into human capital theory in entrepreneurship. The entrepreneurship literature has offered several arguments on how human capital increases entrepreneurial success (Marvel et al., 2016; Unger et al., 2011), however, it has largely disregarded how a particular type of human capital that is essential in a particular situation may be less important, or even disadvantageous, in other situations (Marvel et al., 2016; Nikiforou, 2023). Our study helps disentangle the role of human capital in entrepreneurship by providing empirical evidence that different types of human capital (specific vs. general) are more (less) advantageous to new firm performance in different founding industry conditions (unfavorable, average, favorable). Notably, these effects are not trivial (see Figure 4). As mentioned, the lowest performance outcomes for founders with specific human capital is roughly 32,000 EUR, and roughly 25,000 EUR for those with general human capital, with industry effects adding roughly 20,000 EUR (specialists) or 16,000 EUR (generalists) to this outcome—depending on where (in which industry) entrepreneurs employ their human capital.

Our study also adds other important insights to the unresolved specialist–generalist debate in entrepreneurship, and beyond (Åstebro & Yong, 2016; Chen & Thompson, 2016; Souitaris, Pend, Zerbini, & Shepherd, 2022; Teodoridis et al., 2019). In particular, by showing that the value of specific and general founder human capital is contingent on how “hard” an industry is hit by a crisis, our results help to shed light on the conflicting theoretical

predictions that current theory offers. Because new firms founded by individuals with general human capital endowments, *on average*, generated higher revenues during a crisis compared to firms founded by individuals equipped with specific human capital, we find support for Lazear’s (2005) balanced skills theory. In contrast to what Lazear’s theory proposes, however, we find that specific human capital is *more valuable* in the most *favorable* industry contexts, and in the most *unfavorable* ones. In addition, we uncover that firms created by individuals with specific human capital will perform better in the most *dynamic* industries. Taken together, our more holistic examination allows us to bring together the conflicting predictions offered by current theory, as we can show that *both* generalist and specialist entrepreneurs are able to launch a successful new firm—yet, their relative ability to do so depends critically on the conditions of the industry setting.

Furthermore, as noted, the existing body of work on entrepreneurship in times of crisis has focused on young firms that are already established (e.g., less than 10 years old) (for a recent overview, see Xu et al., 2021) and has tended to neglect the early phase when a new firm is launched and founders seek to generate initial revenues. Because this early phase poses its own challenges and liabilities (Brüderl & Schüssler, 1990; Stinchcombe, 1965) that tend to be exacerbated by the adverse conditions encountered during an economic crisis, the existing literature has limited relevance for our understanding of how *newly* launched firms may succeed during a crisis and create a source of income for their founders.

Moreover, existing studies have usually treated economic crises as uniform events that affect the whole economy in the same way (Xu et al., 2021).

By considering heterogeneity in founding conditions during a crisis, we have developed a more encompassing theory of the effect of founder human capital on new firm performance, suggesting that although the insights from extant research are meaningful when viewed as “average” findings in an economic crisis, they may be strongly misleading for unfavorable or favorable industry settings in a crisis.

Our results therefore also call into question existing notions of what it means to be “resilient” during an economic crisis (Williams et al., 2017), as different types of resilience can lead to superior outcomes—depending on the industry setting in which one is located during the crisis. Importantly, our results show that resilience is also matter of “luck” that occurs when the right person (i.e., a founder possessing the right human capital endowments) happens to be at the right place (i.e., industry) during times of adversity.

Finally, our study contributes to the burgeoning literature on necessity entrepreneurship, namely the creation of new firms by individuals facing adverse circumstances. This perspective seeks to explore what occurs when individuals have few, if any, options for gainful employment, and thus turn to entrepreneurship out of need (Dencker et al., 2021; Nikiforou et al., 2019). Although this stream of research has generated important theoretical and empirical knowledge of how need influences the entrepreneurship process, it has not yet provided a thorough accounting of the factors that can systematically affect new firm performance among the group of necessity-based entrepreneurs. Yet, such an understanding is required to inform both theory and policy-makers who implement programs supporting the transition of individuals from unemployment to entrepreneurship. Our results highlight the importance of incorporating notions of crisis into research on necessity entrepreneurship, as dramatic downturns in an economy suddenly create a large pool of necessity entrepreneurs.

Our findings also support claims about the importance of increasing knowledge of how the variation in necessity entrepreneurship influences the entrepreneurship process (Dencker et al., 2021). For example, in contrast to bottom-of-the-pyramid entrepreneurs who have little human capital, necessity entrepreneurs in a crisis setting in developed countries often have high levels of human capital that are similar in nature to “opportunity entrepreneurs” (Brewer & Gibson, 2014)—albeit with the critical difference that these necessity entrepreneurs typically found firms not out of an urge or desire to

do so but simply because they have no other better alternatives.

Implications for Necessity Entrepreneurs and for Public Policy

Our findings have interesting and important implications for necessity entrepreneurs and government policy-makers. For example, individuals in a crisis situation may not only experience the hardship of a crisis firsthand but may also easily become wound up in the crisis rhetoric by being bombarded by media reports on a daily basis—as was the case in Greece, where the news reporting was dominated by topics such as the tough austerity measures as well as crisis-induced mental health issues (e.g., insomnia, fatigue, and suicides), especially among the unemployed (e.g., Kaitanidi, 2009; TO VIMA, 2010). As such, government agencies may find it helpful to try to counteract negative narratives put forth by the media by highlighting positive aspects of the programs, and encouraging founders to be resilient even in the face of considerable challenges.

Because crises are not uniform events in that they affect new firms in fairly different ways, necessity entrepreneurs should also be encouraged to pay particular attention to their own industry context—as it may be more- or less-affected than the average economy—when making firm-related decisions. In this regard, they should also question repeatedly whether their own knowledge and their existing relationships are still meaningful, be aware that the setting may experience a sudden turn for the worse (or for the better), and be prepared to adjust their plans and efforts swiftly.

These observations also offer additional ideas as to how policy-makers can further improve their support of entrepreneurs out of necessity. In this study, we examined a population of founders who were supported by a government scheme that facilitated the transition of the unemployed to entrepreneurship. These government programs exist in most Western European nations, as well as in several U.S. states, and tend to be structured in similar ways in terms of financial and training assistance. In a number of countries (e.g., Austria, Germany, and Greece), such programs tend to favor specialists, as they often require applicants to have formal professional qualifications such as appropriate educational degrees, or prioritize those with relevant professional experience (Arbeitsuchende Österreich, 2023; Die Bundesregierung, 2023; Greek Employment Agency, 2014). Our findings suggest that, to the furthest

extent possible, policy measures geared toward helping the unemployed to enter the economic system should give more support to the unemployed possessing general human capital endowments to create their own business, and provide information to them highlighting the challenges they may experience when operating in extreme settings during a crisis. Furthermore, government agencies may consider providing dedicated training to founders on how to manage the challenges that come with running a business in a crisis, such as how to interpret the industry context, the possibilities they have in adapting their business, and when to be flexible and adaptable versus when to preserve their existing knowledge.

Limitations

As with other studies, ours is not without limitations. First, we examine entrepreneurship in a particular geographic context and time period, raising questions about whether our findings hold in other situations and eras, or in other countries at the same time. However, the crisis that we study, the Great Recession, was experienced by many individuals and many new firms around the world—not just in Greece. Moreover, the founders in our sample appear to share important similarities with founders in many other settings. For example, as our control variables indicate, the link between several founder characteristics and entrepreneurial success was as expected, with years of education and years of industry experience having a significant positive effect on new firm performance. Thus, although there are aspects of the educational system in our context that may not hold in all regions of the world (e.g., vocational training programs are more common in Europe than in the United States), these differences are often a matter of degree rather than type. Nevertheless, it would be useful to extend our research to other settings to assess whether variation in certain characteristics of those settings matter for entrepreneurial outcomes.

Second, we examine new firm creation during a severe global economic crisis—the Great Recession. Due to the severity of the crisis, our empirical study benefitted from considerable variation in our industry performance measure, enabling us to theorize and empirically test how founders with specific or general human capital are more, or less, well-equipped to maneuver their new firms depending on how severe their respective industry is affected by the crisis. Because our conceptual arguments

regarding the distinct challenges and possibilities associated with different founding conditions possess more general relevance, we expect that our theory is generalizable to other economic contexts. For instance, if an industry is only mildly affected in an economic crisis (as is the case in our favorable industry setting), we expect that founders with specific human capital will do better than those with general human capital. Given the findings of the present study, it would be interesting to investigate how different levels of growth in a (strongly) booming economic context may affect the human capital–new firm performance relationship.

Third, as in other studies on new firm performance, we face the possibility that our results are subject to unobserved heterogeneity (Brüderl & Schüssler, 1990). For instance, unobserved factors on the individual (e.g., personality, general mental ability) and firm (e.g., firm type) levels may affect our findings. Nevertheless, as we find that necessity entrepreneurs with either specific or general human capital are able to create strongly-performing firms, and as we are able to control for a large number of factors at the individual, firm, industry, and regional levels, it seems that unobserved heterogeneity is unlikely to have a critical influence on our findings.

CONCLUSION

Economic crises have profound effects on societies (ILO, 2020; Verick, 2009). Advancing our knowledge of how the unemployed can become an active part of a country's economic activity is of importance not only for affected individuals but also for society as a whole: an entrepreneurial activity that generates revenues gives individuals a sense of dignity and purpose within the larger societal fabric and allows them to have a positive outlook on their future, thereby supporting societal cohesion and enabling productive use of the existing human capital within a country. Furthermore, the newly launched firms would be of critical benefit to countries experiencing crises, as they could help reduce unemployment rates, and help to grow the economies and emerge from the crises more quickly.

In short, entrepreneurial activity can be viewed as a beacon of hope not only for the unemployed but also for society-at-large and its functioning during and in the aftermath of an economic crisis. In light of these important implications, we encourage scholars to further advance our understanding of entrepreneurial activity in the context of external disruptions.

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