NECESSITY ENTREPRENEURSHIP

PHILIP O'DONNELL
Dublin City University
Glasnevin
Dublin 9
Ireland
Tel: +353 1 700 5254
Email: philip.odonnell2@mail.dcu.ie

MARGOT LEGER
Utrecht University
Kriekenpitplein 21-22
3584 EC, Utrecht
The Netherlands
Email: m.j.m.leger@uu.nl

COLM O'GORMAN
Dublin City University
Glasnevin
Dublin 9
Ireland
Tel: +353 1 700 6941
Email: colm.ogorman@dcu.ie

ERIC CLINTON
Dublin City University
Glasnevin
Dublin 9
Ireland
Tel: +353 1 700 5747
Email: eric.clinton@dcu.ie

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ABSTRACT

Over the past two decades, necessity entrepreneurs – those who engage in entrepreneurship because of a belief that decent or desirable livelihood alternatives do not exist for them – have become increasingly visible in the entrepreneurship literature. During this time, however, necessity entrepreneurship – both the phenomenon and the theoretical construct – has acquired something of a bad name. As a phenomenon, necessity entrepreneurship is widely associated with capital constraints, marginal profits, and limited economic impact. As a theoretical construct, it is often seen as a crude and pejorative classification device. In this article, we take stock of this emerging body of research, providing an integrative account of extant research and a focused analysis of the main areas of discord within this literature. We set out specific pathways aimed at remediating incongruity between, on the one hand, how necessity entrepreneurship is defined and conceptualized and, on the other, how it manifests across the diverse array of real-world contexts that feature in this literature. We use these reflections to foreground an agenda for future research which is sensitized to the main concerns and critiques that have surfaced in this literature in recent years, and to key shifts in conceptual approach to which they have given rise.

INTRODUCTION

Entrepreneurship has been an ever-present feature of human society at least since the time of the first agricultural revolution, when the dominant form of social organization began to shift from small, nomadic bands of hunter-gatherers to larger and more complex societies characterized by increasing specialization and division of labor (Baumol, 1996; Carlen, 2016). Economic historians have documented how, in the roughly 10,000 years since, the enduring prosperity of nations and civilizations has flowed in large part from the cultivation of a spirit of enterprise, where entrepreneurs are incentivized by the certainty that transformational ideas and technologies will be embraced and rewarded (Landes, 1999). Accordingly, entrepreneurs are heralded as cultural icons in much of the modern world, where they are at the visible forefront of humanity's efforts to address many of our so-called grand challenges, such as the transition to sustainable energy, the strengthening of democracy, and the universal access to food, education, healthcare, and other basic services.

Much less prominent across both academic and popular discourse is the fact that, throughout history and into the present day, entrepreneurship has been, and is, oriented widely towards the much more mundane objective of economic self-reliance. Even in developed nations like France, Japan, and Spain – and even before the Covid-19 pandemic precipitated widespread labor market upheaval – upwards of one-fifth of those entering self-employment were doing primarily because they did not believe that better alternatives for work were available to them (Bosma & Kelley, 2019). In developing countries, where social safety nets are less comprehensive and where the pace of urbanization has drastically outstripped that of job creation over recent years, it is common for this number to be significantly larger (Margolis, 2014; Poschke, 2013).

Entrepreneurship of this kind is often referred to as "necessity entrepreneurship" (NE), which we formally define as market-based trading activities that are performed outside the scope of salaried employment, and that are undertaken primarily because of a lack of decent or desirable livelihood alternatives. Over the past 20 years or so, scholarly interest in NE has begun to catch up somewhat with the prevalence of the phenomenon itself. Arguably, though, the theoretical construct of NE is as contentious as it is popular; alongside an ever-growing accumulation of empirical insights, critiques routinely surface which challenge the construct's descriptive and analytical value. In some cases, these critiques are used to foreground subsequent efforts at theoretical advancement (e.g., Dencker, Bacq, Gruber, & Haas, 2021); in others, they represent conclusions in and of themselves, leaving open the question of whether the construct of NE has impaired, rather than advanced, our efforts to understand the phenomenon that it is intended to represent (Sarkar, Rufin, & Haughton, 2018; Williams & Williams, 2012). Indeed, given the immense diversity in the "where", "how", and even the "why" of NE, some scholars have questioned whether it is appropriate or helpful to conceptualize it as a singular, universal practice at all, suggesting that, in our efforts to do so, one of two outcomes is inevitable: either we are left with a construct that is overstretched and lacking any real representational substance (Puente, González Espitia, & Cervilla, 2019; Williams & Gurtoo, 2013), or we conceal much of this diversity beneath stylized or stereotyped representations of necessity entrepreneurs (e.g., informal micro-entrepreneurs in the developing world), which serves to render other groups invisible (e.g., parents whose domestic responsibilities preclude them from taking on jobs that are commensurate with their skills and experience) (Foley, Baird, Cooper, & Williamson, 2018).

That the propagation of these concerns has failed to curb the momentum that this literature has generated could be viewed either as an encouraging sign or a troubling one. On the one hand, it

might indicate that these concerns are being progressively edged out by a gradual accumulation of affirmative findings; on the other hand, it might give us reason to be cautious when drawing inferences from the continuous stream of affirmative findings that is emerging. In this article, we review the findings that underpin each of these possibilities with a view to determining if (and how) the inherent tensions in this literature might be reconciled. Our review contributes to the achievement of this end goal in three main ways.

First, we provide a comprehensive and integrative review of extant research on NE. In doing so, we connect the tensions that have come to the fore in this literature to the duality between the empirical and the conceptual merits of NE, or between NE as a form of economic action and NE as a theoretical construct. Second, we reflect on how these tensions, and key conceptual developments to which they have given rise, shape future prospects for this field of research. Third, we outline a set of general and specific avenues for future research which reflect not only the areas of this literature that remain systematically underdeveloped, but also the areas in which NE research is well positioned to deliver insights that are of broader relevance to the field of entrepreneurship and beyond.

The remainder of this article proceeds as follows. In the next section, we foreground our review with a short overview of the conceptual roots of the NE construct, its status in contemporary entrepreneurship literature, and its place in the global labor economy. We then detail our review methodology. Following that is our integrative review of the literature, from which we proceed to a broader discussion of the problems – and solutions – that exist in how we conceptualize NE. In this section, we build towards what we believe to be the most promising avenues of future inquiry, based on the observations that we made in the course of our review.

NECESSITY ENTREPRENEURSHIP: WHAT IT IS, WHERE IT CAME FROM, AND WHY IT MATTERS

"Entrepreneurship is anchored in opportunity. Any entrepreneurial initiative springs from a sense that a genuine market opportunity exists for the product or service that a new firm may provide. Market opportunity is, in a fundamental sense, the wellspring of entrepreneurship."—Global Entrepreneurship Monitor, 1999 Executive Report (Reynolds, Hay, & Camp, 1999: 19).

The excerpt above, taken from the first installment of the Global Entrepreneurship Monitor's (GEM's) yearly report on trends in entrepreneurship around the world, equates entrepreneurship with something that has subsequently come to be more narrowly defined as "opportunity entrepreneurship" (OE): entrepreneurial activities that are said to be motivated primarily by the perceived existence of a market opportunity.

Scholars have long understood, however, that the factors which lead people to engage in entrepreneurship are not quite as homogeneous as this excerpt suggests. More specifically, the idea that entrepreneurship represents an occupational choice that people make from a position of absolute freedom had been challenged many years earlier; Shapero (1975: 83), in shining a light on the case of the "displaced, uncomfortable entrepreneur", observed that "most entrepreneurs […in the United States…] are people fired from their jobs, or deprived of an opportunity to advance in their jobs". Rather than being "pulled" into entrepreneurship by a belief that one has the skill set to successfully service a market need (the "opportunity" case), many entrepreneurs find themselves "pushed" into it because decent livelihood alternatives do not exist for them (the "necessity" case). Subsequent work, in successfully using this push–pull framework as a way of

theorizing variance in entrepreneurial outcomes (Amit & Muller, 1995), suggested that disparities in entrepreneurial motivation might hold considerable explanatory power, and the necessity/opportunity typology was incorporated into the third GEM Global Report in 2001 (Reynolds, Camp, Bygrave, Autio, & Hay, 2001).

Successive GEM reports in the years since have established the ubiquity of the NE phenomenon. Across the 48 economies that featured in GEM's 2018/2019 report – the last full-year report published pre-pandemic – NE was found to account for around 23% of all entrepreneurial activity (Bosma & Kelley).[1] Because NE tends to be more commonplace in developing economies, which are themselves underrepresented in GEM, it is likely that the global prevalence of NE is, in fact, considerably higher. Moreover, as Margolis (2014) points out, family members are especially prominent contributors to business operations in most developing regions, and were they to be included in standard enumeration protocols around NE, it is likely that NE's observed scale would expand further still.

Not only is the phenomenon of NE a ubiquitous feature of the global economy, but researchers' usage of the NE construct – and, by extension, the NE–OE conceptual typology – has also become widespread. In the 20 years since GEM first published disaggregated data on NE and OE (Reynolds et al., 2001), few, if any, conceptual typologies have been more extensively used to make sense of empirical variance in the phenomenon of entrepreneurship, and a large and diverse body of empirical research and theory has now accumulated. However, the proliferation of the NE construct – and, relatedly, of the treatment of entrepreneurial motivation as a dichotomous variable

[1] GEM reports published after the onset of the pandemic (e.g., Bosma, Hill, Ionescu-Somers, Kelley, Guerrero, & Schott, 2021) suggest that necessity may now be playing an even more prominent role in driving entrepreneurial activity around the world; however, because of differences in how NE has been captured by GEM, pre- and post-pandemic figures are not directly comparable.

(either necessity or opportunity) – has sparked concern, with some scholars suggesting that this is an overly reductive, ambiguous, and oftentimes disparaging distinction (Kariv & Coleman, 2015; Milot-Lapointe, Boua, & St-Jean, 2021; Puente et al., 2019; Williams & Williams, 2012). The need to more systematically explore the substance of these critiques, and the various streams of conceptual development to which they have given rise, was an important factor in motivating our review.

REVIEW METHODOLOGY

Scoping, Searching, and Screening

In keeping with conventions for conducting an integrative literature review (Elsbach & van Knippenberg, 2020), we began by formulating a tentative and open-ended scoping question (Peters, 2016), the aim of which was to guide the search process and to help us establish a thematic boundary for our review. This question was simply, "What are scholars talking about (and not talking about) when they discuss necessity entrepreneurship?"

After considering and trialing numerous possible search functions, we opted for "'necessity' AND 'entrepreneur*'". We discussed the possible merits of broadening our search to include neighboring concepts, or references to what might be regarded as manifestations of the same phenomenon but referred to using different terminology. Aware, for example, that a large body of literature now exists which focuses on entrepreneurship in contexts of poverty (Sutter, Bruton, & Chen, 2019), and that the adjective "necessity" is employed only sporadically within this body of work (we will return to this topic in more depth later in our review), we considered including additional search terms like "poverty," "informal," "subsistence," and "Base of the Pyramid,"

aimed at helping to capture papers that were potentially relevant but that our primary search might have missed. However, we concluded that this would skew our body of literature heavily in the direction of a particular context (i.e., the developing world), which would ultimately constitute a misrepresentation of the literature. We also considered redressing this imbalance by applying a broader set of keywords (like "constraint", "push factors", "resource depriv*", and "disadvantaged") that are less context-specific, but this was likely to have produced an unmanageably large and weakly connected set of results. Moreover, by sticking closely to the NE terminology, the ongoing debates about the status and usefulness of the construct itself became more salient.

We searched Scopus and Web of Science (WoS) for English-language articles that contained our search terms in their title, abstract, and/or keywords. Initial searches across these two platforms, which were performed on April 22, 2021 (T1), yielded 1,098 and 948 results, respectively. An identical search was performed on April 6, 2022 (T2), to capture any articles that had been published (or that had become available in pre-publication format) since our initial search. This T2 search returned an additional 152 and 133 papers on Scopus and WoS, respectively.

Conscious that NE can no longer be regarded as a topic that is solely of interest to entrepreneurship scholars, we felt that it was important that the journals and articles encompassed by our review should reflect this multidisciplinarity. Therefore, rather than limiting our review only to entrepreneurship journals, we used the Chartered Association of Business Schools' Academic Journal Guide 2018 (referred to henceforth as the ABS Journal Guide or the ABS rankings) as the primary screening mechanism. The ABS Journal Guide is widely used as a barometer of journal quality, and, as previous reviews have noted (e.g., Radu-Lefebvre, Lefebvre, Crosina, & Hytti, 2021), it promotes the dual objectives of maintaining breadth (the guide includes approximately

1,500 journals, covering various topics relating to business and management) and of providing a transparent and replicable quality control framework. To ensure that all included articles adhered to a baseline level of quality, we considered for inclusion all articles that were published in journals with an ABS ranking of 2 or higher (equating to 972 journals). According to the ABS Journal Guide methodology, papers that are published in journals that achieve an ABS ranking of 2 "are fully refereed according to accepted standards and conventions" (Chartered Association of Business Schools, 2021: 13). As well as meeting this baseline quality standard, journals that achieve a higher ABS ranking (it is a five-tier system) generally have higher impact factors, broader readership, and lower acceptance rates for submitted articles.

Conference papers, book chapters, and other works that were not published in journals with an ABS ranking of 2 or higher were eliminated, as were articles that showed up on both the Scopus and WoS searches. From our T1 search, 299 articles remained after these steps, and 45 remained after our T2 search. The abstracts and keywords of all 344 of these articles were uploaded to Rayyan (www.rayyan.ai), which is a free, web-based platform that is designed to simplify the process of article screening and selection for systematic reviews. The Rayyan system facilitated the double-blind review of each abstract, where two members of our authorship team read each of the 344 abstracts that we uploaded to Rayyan and independently adjudicated on whether the corresponding article should be included in, or excluded from, the review. In cases where it was unclear from the abstract whether the paper should be included or not, the reviewer read the full paper. Appendix A illustrates the decision matrix that all reviewers used to adjudicate on article inclusion or exclusion.

Where a member of the authorship team recommended that a paper be excluded, they provided a short rationale; by far the most common reason for exclusion was that "necessity" and

"entrepreneur*" were used independently of one another in the abstract, and not in a way that was intended to connect with "necessity entrepreneurship" (e.g., "The *necessity* to develop a more *entrepreneurial* university" [Centobelli, Cerchione, Esposito, & Shashi, 2019: 3301, italics added]). The level of inter-rater agreement was very strong, equating to a Cohen's Kappa of 0.95 (0.70 is generally seen as an acceptable reliability threshold) (Cohen, 1960). In instances where disagreements arose, the two team members that reviewed the article revisited it to try to resolve the disagreement by consensus; where the disagreement persisted, a third team member read the paper and adjudicated. After this screening process, 197 articles remained, all of which were included in our review.[2] A full illustration of our search and screening process is provided in Appendix B. Drilling deeper into the composition of this article set illustrates that research on NE is growing in both volume and range, with the number of articles published each year increasing steadily since 2004, and the breadth of scholarly interest now spanning multiple disciplinary areas (see Appendices C and D for graphical illustrations).

Analysis

All 197 papers were thematically coded with Nvivo, using a coding framework that we inductively developed at the outset of the analysis process (Cronin & George, 2020). To create this framework, we selected a sample of 20 papers and had two members of our authorship team perform a round of open, descriptive coding on each one. We then produced a "master framework," comprising 71 codes and subcodes, by pooling all of the codes that we developed individually and merging those that were related to themes that were the same or similar. All codes and subcodes were explicitly

[2] For the purposes of enumeration, Dencker et al. (2021) and the four dialogue/response articles to which it gave rise are counted as one article.

defined in order to eliminate ambiguity, and an overview of our full codebook, including code names and definitions, is provided in Appendix E.

In tandem with this process of thematic coding, we captured other observations relating to each paper separately on an online spreadsheet. Basic descriptive information – such as paper type (empirical, conceptual, review), methodology (quantitative, qualitative, mixed method), and country/region of empirical focus – was logged here, as was a summary of each paper's research question and main findings. We also recorded general notes and observations in the spreadsheet, making it an important forum for sharing our evolving perspectives on this literature and for identifying areas of consensus, tension, disagreement, and neglect within it. A streamlined version of this spreadsheet, which also serves as a full list of all of the 197 papers included in our review, is available in a separate online appendix.

INTEGRATIVE REVIEW OF THE LITERATURE

Mirroring much of the literature that we reviewed, we arrange this section around the question of whether NE is a "good thing". Our intention in doing so is not so much to adjudicate (Cronin & George, 2020) as it is to elucidate the perspectives and insights that have shaped this discussion. While there is relatively broad agreement that NE is not a good thing, we observe a misalignment between the studies for which this is an empirical question, and those for which it is a conceptual question. That is to say, "goodness" is explored both in terms of the capacity of NE – *as a form of economic action* – to yield material outcomes which people and societies have reason to value (e.g., wealth and job creation), and in terms of the capacity of NE – *as a theoretical construct* – to deliver a richer and more contextualized understanding of why and how people engage in

entrepreneurship. Our review highlights that these perspectives have co-existed without necessarily connecting, at least until recently, when scholars have begun to explore fresh avenues for theoretical advancement (Dencker et al., 2021; Puente et al., 2019). As a result, patterns of usage have continued to trend upward, even as criticisms of NE's conceptual soundness have grown more prevalent (see Figure 1). We explore both of these themes individually below, before progressing to a more integrative analysis of what this duality might mean for the future prospects of this literature.

==== Insert Figure 1 here====

Empirical Perspectives: Is Necessity Entrepreneurship (as an Empirical Phenomenon) a Good Thing?

The question of whether NE is a good thing is one that is often answered before it is ever properly asked. The NE construct – and the broader NE–OE framework – is typically invoked as a way to theorize why some entrepreneurial activities yield better (or, in this case, worse) outcomes than others. NE's status within this framework is perhaps best summed up by the fact that, across the 197 papers that we reviewed, we were unable to find a single paper which hypothesized or explicitly predicted that NE would deliver an outcome that could be said to carry greater normative value than OE. This hierarchical ordering is evident, on an even more foundational level, in how the two constructs are defined and described. Whereas OE is widely portrayed as a "vision-driven" (Todorovic & McNaughton, 2007: 386), "Schumpeterian" (Arouri, Ben Youssef, & Quatraro, 2016: 336) phenomenon "associated with innovativeness, high productivity and economic growth" (Kontolaimou et al., 2016: 480), NE is associated with "negative characteristics" (Puente et al.,

2019: 953) and "little, if any, potential for creativity, innovation and development" (Garcia-Lorenzo et al., 2018: 375), and is routinely characterised as "generally of lower quality" (Burtch et al., 2018: 5511).

A large majority of the studies in our review yield empirical results which support the starting premise that NE represents an inferior class of entrepreneurial activity to OE. The grounds upon which NE has been found to be different from (and invariably worse than) OE are numerous, and span various facets of the phenomenon as well as multiple levels of analysis. To help us build a more integrative picture of how these disparate findings fit together, we employ the logic model as an organizing framework for our main observations (Frechtling, 2007). The logic model is chosen here because, as well as enabling us to unpackage various facets of NE in considerable detail, it allows us to build a coherent, end-to-end overview of NE that pulls together its disparate array of antecedents and outcomes, as well as the different levels of analysis (micro and macro) at which these antecedents and outcomes manifest. The logic model is made up of a chain of causes and effects that cover five interconnected dimensions, namely: inputs, activities, outputs, outcomes, and impacts. Refer to Figure 2 for a graphical overview of the logic model as it relates to the NE literature.

==== Insert Figure 2 about here ====

***Inputs*.** Inputs refer to the resources (both tangible and intangible) that underpin the value creation process. Studies find that entrepreneurs who are driven chiefly by necessity have, on average, lower capital endowments than those for whom necessity is not a central factor (Sohns & Revilla-Diez, 2018; Xavier-Oliveira, Laplume, & Pathak, 2015). Necessity entrepreneurs consistently report lower levels of human capital (Calderon, Iacovane, & Juarez, 2017; Ferrín, in

press; Kallmuenzer, Baptista, Kraus, Ribeiro, Cheng, & Westhead, 2021; Karaivanov & Yindok, 2022; Zulfiu Alili & Adnett, 2021), financial capital (Brünjes & Revilla-Diez, 2013; Liu & Huang, 2016; Uddin, Bose, & Ferdausi, 2014), and social capital (Leporati, Marin, & Roses, 2021; Wei, Jiao, & Growe, 2019) than opportunity entrepreneurs. Along similar lines, these studies observe that more economically vulnerable demographic groups – including immigrants, women (particularly in countries where levels of formal employment are substantially lower for women than for men), and young people – tend to be overrepresented among necessity entrepreneurs (Adom, 2014; Almobaireek & Manalova, 2013; Brush, Duffy, & Kelly, 2012; Chrysostome, 2010; Garcia-Cabrera, Lucia-Cademunt, & Padilla-Angulo, 2020; Gottschalk & Niefert, 2013; Jafari-Sadeghi, 2020; Leporati et al. 2021; Quartey, Danquah, Owusu, & Idrissu, 2018). These findings are broadly indicative of the so-called "refugee effect" (Audretsch, Caree, & Thurik, 2001), wherein it is the more marginal sections of the workforce that find themselves unable to secure decent work and, in turn, who are pushed into self-employment (Abdesselam, Bonnet, & Renou-Maissant, 2014; Carrasco & Herranz, 2022).

Activities. Activities refer to the strategies and processes through which inputs (resources) are transformed into valued outputs (products and services). Of the five dimensions of the logic framework, activities have attracted the least amount of research attention (Dencker et al., 2021; Nikifourou, Dencker, & Gruber, 2019). Research has, however, observed that innovation tends to be less prevalent in NE than OE (Fernández-Serrano, Martínez-Román, & Romero, 2019), in large part because of the higher levels of human capital that characterize OE (Nakara, Messeghem, & Ramaroson, 2021). This lower propensity for innovation is reflected in a preference for market strategies that prioritize cost-leadership over differentiation; that is to say, necessity entrepreneurs tend to compete on price rather than on quality (Block, Kohn, Miller, & Ulrich, 2015) and, in turn,

to be concentrated in sectors in which profit margins are lower (McMullen, Bagby, & Palich, 2008; Tran & Santarelli, 2017). Enterprises established out of necessity are also more likely to maintain a domestic focus, rather than expanding into new, overseas markets (Jafari-Sedeghi, Sukumar, Pagan-Castan, & Dana, 2021). Taken together, findings relating to the inputs and activities that drive NE provide a strong evidential basis for the claim that it is, on average, of a "lower quality" (Naudé, 2010): empirical work indicates, for example, that NE typically revolves around lower-quality opportunities (Edoho, 2016; Xiong, Ukanwa, & Anderson, 2018), that the fit between the entrepreneur and the opportunity – meaning the extent to which the entrepreneur has the knowledge and skills to maximize the value of an opportunity – is generally weaker (Nikiforou et al., 2019), and that the methods and strategies for opportunity exploitation are often less effective among necessity entrepreneurs than among opportunity entrepreneurs (Block et al., 2015; Sohns & Revilla-Diez, 2018).

Outputs. Outputs refer to the direct results of a set of activities. If we were to think of activities as value creation, we might, for the purposes of this analysis, think of outputs as value capture. Empirical research consistently finds that necessity-based enterprises are less profitable than their opportunity-based counterparts (Bourles & Cozarenco, 2018; de Vries, Liebregts, & van Stel, 2020; Sohns & Revilla-Diez, 2018), which is a disparity that some research suggests is robust over time (van Stel, Millán, & Millán, 2018). Although considerable research attention has been paid to the income disparity between NE and OE, only a very limited amount of empirical work has attempted to compare the economic returns of NE with those of salaried employment. Liu & Huang (2016) find that, in urban areas in China, necessity entrepreneurs' income levels are considerably below those of wage workers, as well as those of opportunity entrepreneurs, although it is noted that the cultural context of this study – in particular, the cultural preference in China for

salaried employment over entrepreneurship, and the adverse selection effects that this creates – is likely to have had a significant bearing on the results. Similarly, Acs (2006) makes the observation that rapid structural changes in an economy – such as the transition from a centrally planned to a market-led system – can often bring about an influx of wage workers into NE, which is a pattern that tends to be accompanied by economic contraction rather than expansion.

Outcomes. Outcomes refer to the longer-term effects, felt at the level of a focal individual, group, or organization, of a set of activities. Among the specific outcomes that have attracted the most attention within this literature is the relationship between necessity and venture longevity. Although it is often claimed that enterprises initiated out of necessity tend to be more short-lived than opportunity-based enterprises (e.g., Kariv & Coleman, 2015), empirical evidence is not altogether conclusive. Among the handful of studies which link NE to lower survival rates (Valliere & Peterson, 2009; Belda & Cabrer-Borras, 2018; Burtch, Carnahan, & Greenwood, 2018; Revuelto-Taboada, Redondo-Cano, & Balbastre-Benavent, 2021), some argue that it is not necessity, but rather lower levels of human capital – which is a correlate of necessity – that drive this pattern (Block & Sandner, 2009). Others observe that differences in survival rates are relatively marginal (Baptista, Karaoz, & Mendonca, 2014), and that, in some contexts, necessity-based enterprises in fact outlast opportunity-based enterprises (Civera, Meoli, & Vismara, 2020). Irrespective of observed differences in longevity, it worth noting that, where necessity-based enterprises are concerned, longevity is not always a desirable outcome; the opportunity costs of NE are lower than those of OE (Fredström, Peltonen, & Wincent, 2021; McMullen et al., 2008), and for many necessity entrepreneurs, persevering with their ventures – even if they are not performing well – may be the only viable option (Abdesselam et al., 2014; Burke, Lyalkov, Millán, Millán, & van Stel, 2021; Dvouletỳ, 2014; Fossen, 2020; Horta, Meoli, & Vismara, 2016).

One of the most compelling streams of research within the NE literature surrounds its non-economic outcomes, namely the degree to which necessity entrepreneurs feel satisfied by their work and by their lives more generally (Bhuiyan & Ivlevs, 2019). While self-employment has historically been associated with higher levels of job satisfaction (Blanchflower, 2000), more fine-grained analyses which split out NE and OE reveal a more complex picture. Studies have observed, for example, that the largest increases in job and life satisfaction accrue to those who move into self-employment on a more or less voluntary basis (Aguilar, Garcia-Munoz, & Moro-Egido, 2013; Block & Koellinger, 2009); although moving from unemployment to self-employment (NE) is associated with an increase in life satisfaction, the magnitude of this increase is smaller than that brought about by a move from salaried employment to self-employment (OE), and is broadly similar to the changes in life satisfaction that accompany a move from unemployment to salaried employment (Binder & Coad, 2013). However, recent evidence, has challenged the idea that higher levels of life satisfaction among entrepreneurs is a phenomenon which "is entirely driven by opportunity entrepreneurs" (Larsson & Thulin, 2019: 930), and, in turn, has cast the phenomenon of NE in an (unusually) positive light. Amorós, Cristi, & Naudé (2021), for instance, find that necessity entrepreneurs report levels of life satisfaction that are similar to those reported by opportunity entrepreneurs. Other research has uncovered a link between self-employment and improvements in mental health – a link that holds even when people enter self-employment out of necessity (Nikolova, 2019).

Impact. Impact is concerned with the diffusion of substantive, long-term effects beyond a focal individual, group, or organization, and throughout society at large. Although only a relatively small number of studies place a central focus on the societal- or macro-level outcomes of NE, it is largely through the prism of these findings that NE is viewed within broader entrepreneurship

scholarship (Acs, 2006; Stoica, Roman, & Rusu, 2020). High levels of NE are not generally seen as being conducive to economic development; rather, it is OE – or a relatively small subset of high-growth opportunity-driven enterprises – that drives economic transformation (Acs, 2006; Bosma & Sternberg, 2014; Valliere & Peterson, 2009; Wong, Ho, & Autio, 2005). In countries with low levels of economic development, pervasive NE is typified by intense concentrations of informal microenterprises, the majority of which exhibit very low levels of productivity and provide employment only on a casual basis, or not at all (Edoho, 2016; Valliere & Peterson, 2009). In wealthier and more knowledge-intensive economies, higher levels of OE are associated with the diffusion of innovative technologies, fueling continued economic expansion (Kontolaimou, Giotopoulos, & Tsakanikas, 2016; Mrożewski & Kratzer, 2017). Recent work also suggests that NE's contribution to other facets of development is low (Dhahri, Slimani, & Omri, 2021). For example, higher rates of NE relative to OE are associated with poorer environmental outcomes (Omri & Afi, 2020), while, from a social perspective, being pushed into self-employment is itself at odds with contemporary notions of development which have agency or "freedom" (Sen, 2001) at their core (Gries & Naude, 2011; Hernandez, Nunn, & Warnecke, 2012).

Conceptual Perspectives: Is Necessity Entrepreneurship (as an Analytical Construct) a Good Thing?

The empirical findings that we have detailed above paint NE in a largely negative light: NE is generally depicted as a "bad" thing, at least when it is examined with OE as its primary frame of reference (which was the case in all but a small handful of studies that we reviewed). There is, however, another way to approach the question of whether NE is a good thing, which involves interrogating its value as a theoretical construct. Here, focus shifts from the utility of the empirical

phenomenon – i.e., whether NE is beneficial to those who engage with it, or whether policymakers should be encouraged to promote it – to the issue of "conceptual goodness" (Gerring, 1999), and whether it contributes to a deeper scholarly understanding of the phenomenon that it is intended to represent.

Taken together, the literature that we have discussed so far – although it tends to portray the *phenomenon* of NE as "bad" (or, at least, as "less good" than OE) – suggests that the *construct* of NE exhibits most or all of the main markers of conceptual goodness. Gerring's (1999) eight-item formulation of conceptual goodness provides one means of illustrating this (typically implicit) approval. That the NE construct is *familiar* (non-specialist audiences can quickly grasp its meaning), *resonant* (it is intuitive and memorable), and *parsimonious* (it is short) is largely self-evident. Its *field utility* is equally apparent: scholars have long noted that a sizable share of those that embark on self-employment do so primarily because of limited livelihood alternatives (Amit & Muller, 1995; Shapero, 1975) and, by giving a name to that subset (Reynolds et al., 2001), the NE concept has drawn research attention to an aspect of entrepreneurial practice that might otherwise have gone overlooked. As set out in the previous section, cumulative findings have helped to reinforce this literature's foundational narrative, which is rooted in the dual principles of *coherence* (that instances of NE are similar to one another; Gottschalk, Muller, & Niefert, 2010; Maritz, 2004), and *differentiation* (that NE is categorically distinguishable from other forms of economic action, such as OE; Bergmann & Sternberg, 2007; Block, Sandner, and Spiegel, 2015; Brünjes & Revilla-Diez, 2013). The *theoretical utility* of the construct is embodied by the broad extrapolations that have been derived from these underlying qualities of coherence and differentiation (Dhahri et al., 2021; Fernández-Serrano et al., 2019; Larsson & Thulin, 2019; Ryff, 2019). Lastly, the identification of these patterned differences across antecedent, process, and

outcome domains – or, as we have illustrated, across the five dimensions of the logic framework – is suggestive of *depth* (i.e., differences are non-random and broad in scope; Calderon et al., 2017; Sohns & Revilla-Diez, 2018). Throughout most of this literature, it is clear that the volume, range, and theoretical consistency of these findings has been generally regarded as living proof of NE's conceptual goodness, even if the content of those findings has cast NE in an unfavorable light.

However, it is also clear that, even as these empirical insights have accumulated, many scholars continue to see NE as conceptually problematic. As a lens through which to understand why, how, and to what end certain people engage in entrepreneurship, the NE construct, and the broader NE–OE framework, has been variously described as "unhelpful" (Sarkar et al. 2018: 280), "simplistic" (Puente et al. 2019: 2), and "denigrating" (Williams & Williams, 2012: 678). We distil the main issues of concern surrounding the NE construct into three broad critiques (see Table 1). The first of these critiques centers on the appropriateness and validity of "necessity" as a conceptual modifier; the second critique relates to problems of (ir)reducibility and temporality, which blur the boundaries between NE and its neighboring categories; and the third critique is concerned with representational issues, and how our understanding of NE is shaped by what we choose to compare it to.

==== Insert Table 1 here ====

The appropriateness and validity of "necessity" as a conceptual modifier. Echoes of dictionary or layman's definitions of "necessity" – e.g., "a condition that cannot be otherwise" (Collins, n.d.) – can be found in the language that is habitually used to describe NE, such as "forced choice" (McMullen et al. 2008: 876), "an action of last resort" (Todorovic & McNaughton, 2007: 386), a form of "enslaving work" (Szumelda, 2019: 64), and something that people pursue "against

their will" (Bourles & Cozarenco, 2018: 2). In these terms, NE represents a classic example of a Hobson's choice. A person can be said to be faced with a Hobson's choice when they must choose between that which is available, even if it is not what they actually want, and nothing at all. In other words, when decent employment alternatives are not available, people ostensibly face an either-or choice between self-employment and unemployment, which, in the parts of the world where NE is most prevalent, is likely to portend acute poverty and hardship.

Scholars have argued that this implicit hierarchical ordering of livelihood types, where self-employment is imagined as a livelihood of last resort, fundamentally misrepresents the reality of entrepreneurship in economically marginalized contexts. Often, necessity pushes people not into self-employment but into intermittent or chronically precarious employment. Far from being a survival reflex that people turn to only when all other income avenues are exhausted, entrepreneurship – in the form that is habitually referred to as NE – has regularly been found to be beyond the means of the least well-off (Zollmann, 2020). For example, Sarkar et al. (2018), in their analysis of the capital thresholds that inhibit the poor from moving from casual work to self-employment in India, conclude that the scale of the entry barriers that prospective entrepreneurs face is antithetical to conventional notions of "necessity" (see also Brünjes & Revilla-Diez, 2013; Slade Schantz, Kistruck, & Zietsma, 2018).

Other studies have highlighted how, where economic and cultural forces misalign, necessity is no longer a straightforward financial imperative but rather a complex interplay of competing pressures. Here, people might be pushed towards self-employment for economic reasons, but find themselves inhibited or prevented from entering into self-employment by cultural norms. Pressure to conform to prescribed gender roles, in particular, can be a powerful deterrent to entrepreneurship for women in certain cultural settings (Althalathini, Al-Dajani, & Apostolopoulos, 2020). In other

contexts, entrepreneurship may be seen as normatively permissible, but only to the extent that it is performed on a scale that does not lead to inequalities in wealth and status within tight-knit social groups (Albinsson, 2018).

Findings such as these challenge the notion that, even in the presence of significant push factors like job scarcity and income precarity, entrepreneurship somehow constitutes a path of least resistance. Instead, push factors like these are often tempered by other situational concerns which complicate the idea of necessity, sometimes even pluralizing it in such a way that economic necessity is in tension with necessities of other kinds, like attending to domestic responsibilities or maintaining one's social standing. All of this points to a need to reflect on whether, in this literature, we are using the term "necessity" in a lexical or stipulative way. Whereas lexical usage would involve close adherence to the dictionary or layman's definition of the term "necessity" (where choice is not only absent but also irrelevant), stipulative usage requires some level of acceptance that the term's meaning is somewhat particular to the context of use. Later in this article, we will return to these definitional issues, and propose a (stipulative) definition of NE which we believe is sensitized to the concerns outlined above.

(Ir)reducibility and temporality. Entrepreneurship is typically driven by a complex array of different motives, many of which defy easy classification in standard push–pull models (Stephan, Hart, & Drews, 2015; van den Groenendaal, Rossetti, van den Berg, Kooij, & Poell, 2021). The observation that situational factors both "pull" and "push" people to engage in NE is one that has been made in several studies, spanning a diverse array of empirical contexts (Abdallah, Masurel, Naude, & Eijdenberg, 2022; Afutu-Kotey, Gough, & Owusu, 2017; Nabi, Walmsley, & Holden, 2015). De la Chaux & Haugh (2020), for example, provide a vivid account of the proliferation of entrepreneurship in the Dadaab refugee camps of Northern Kenya: despite being

prohibited from engaging in income-generating activities by virtue of their asylum status, and although their basic needs like food, shelter, and clothing were fulfilled via the agency of the United Nations High Commissioner for Refugees, camp residents engaged in a broad array of entrepreneurial activities, fueled not by an existential concern for their own survival but by the motivation to "reclaim economic agency and self-determination" (pp. 835; see also Afutu-Kotey et al. , 2017; Althalathini et al., 2020; Franck, 2012; Vorley & Rodgers, 2014; Williams & Gurtoo, 2013). Reflecting on entrepreneurial activities that were triggered by Argentina's "Great Depression" – referring to the deep economic crisis that unfolded in that country in 2001-2002 – Dey (2016: 573) observes that, alongside "the imperative of putting food on their tables … the right to work, dignity and solidarity are accomplishments that need[ed] to be reclaimed".

The issue of temporality poses a similar challenge to categorical integrity. Not only are entrepreneurship motives multifaceted, but they are also fluid, meaning that the salience of necessity motives can recede with time and give way to more progressive, opportunity motives. This metamorphosis of necessity motives into opportunity motives is widely documented in the literature; Adom (2014: 121), based on his work on micro-entrepreneurs in Ghana, offers some insight into its prevalence when he suggests that "many informal entrepreneurs (75%) who start their business ventures purely due to necessity drivers end up in time becoming opportunity-driven" (see also Athalathini, Al-Dajani, & Apostoloupolos, 2020; Chelekis & Mudambi, 2010; Williams, 2009; Williams, Round & Rodgers, 2010; c.f. Van Stel, Millán, Millán, & Román, 2018). While "transitioning" from NE to OE is widely seen as being a positive development (Chelekis & Mudambi, 2010; Edoho, 2016; Sun et al., 2019), the possibility that NE and OE converge with time has led some scholars to call into question the validity of some of the inferences drawn from this typology, especially those which suggest that the NE–OE distinction is a robust

basis for "picking winners," and one which might be incorporated into policy formulation (Amorós, Ciravegna, Mandakovic, & Stenholm, 2019; Fernández-Serrano et al., 2019; Figueroa-Armijos, Dabson, & Johnson, 2012; Williams, Round, & Rogers, 2010). Such concerns are accentuated by the predominance in the NE literature of cross-sectional, comparative research designs that are poorly equipped to capture these temporal dynamics (Adom, 2014; Williams, 2009; Williams & Williams, 2014).

Problems of representation. The literature on NE is largely made up of empirical studies that uncover or confirm some point of difference between NE and OE. The cumulative effect of this method of investigation, as we have shown, is that NE has become synonymous with survivalism, inertia, and productivity deficits (Acs, 2006; Amit & Muller, 1995; Gottschalk et al., 2010; Prasastyoga, van Leuven, & Harrinck, 2021). There is some concern that not only is this a distorted picture, but, more importantly, that this distortion is made worse, rather than better, by the sheer volume of empirical attention that NE now attracts. Two interconnecting factors underpin this problem.

The first factor is the ubiquity of OE as a frame of reference for NE. Contrary to popular perception (and, indeed, popular usage), to compare NE with OE is not to compare like with like. The simple premise that NE is "chosen" under conditions of relative constraint, whereas OE is chosen under conditions of relative freedom, means that NE is imbued with lower levels of *intrinsic value* than OE, irrespective of the differences in *instrumental value* that have been documented extensively by empirical research (Gries & Naudé, 2011). That is to say, the freedom of choice that is embedded in OE is an end which carries value in its own right. The predominant developmental paradigm of the past 20 years, which is associated most closely with the economic historian Amartya Sen (see Sen, 2001), holds that this freedom should be promoted for its own sake, and

not just because it is instrumentally useful in achieving other desirable ends, such as income growth, job creation, and economic development (Warnecke, 2016). Along these lines, some scholars argue that perceptions of NE have become excessively reflective of what it looks like *compared to OE* (Nikifourou et al., 2019), which is a comparison that naturally brings NE's shortcomings into sharper focus.[3]

Problems of representation also manifest as contested essentialism. Essentialism is the belief that social categories – like "woman", "Catholic", "immigrant", or "necessity entrepreneur" – share an underlying reality that cannot be directly observed (Gelman, 2004). In the case of NE – as in that of most other essentialized social categories – perceptions and weakly held assumptions, as well as systematic observation, play an important part in determining what is believed to be the essence of that underlying reality (Prentice & Miller, 2007). Many scholars, pointing to the immense heterogeneity in the "where", "how", and "why" of NE, question whether the category of NE supports such perceptions and assumptions, or whether it is grounded in – and indeed serves to perpetuate – the illusion of a shared reality (Dencker et al., 2021; Fernández-Serrano et al., 2019; Puente et al., 2019).

[3] Another factor underpinning concerns of representation is the universal problem that empirical findings that do not meet standard thresholds for statistical significance often do not see the light of day (van Witteloostuijn, 2016). This means, in practice, that findings that lend clear support to the idea that NE and OE are categorically distinct from one another stand a considerably better chance of being written up and published than those that do not find such a distinction. As such, we are faced with the possibility that scholarly perceptions of NE are not only distorted by the customary reliance on OE as a frame of reference, but that this distortion is compounded by the systematic underreporting of "non-findings," i.e., findings that do not provide clear empirical support for this distinction.

An Evolving Landscape

It is apparent from the literature that we have reviewed that NE is widely regarded as problematic. However, the grounds on which it is considered to be problematic are themselves contentious. On the one hand, a sizable body of empirical evidence suggests that – by virtue of the inferior returns that typically accrue to the people who engage in it and the societies in which it is prevalent – NE is, at best, the lesser of two goods. From this vantage point, however, the conceptual utility of NE is strong (even if its economic or developmental utility is limited). This is where the literature diverges, and where friction and discord begin to emerge. A sizable share of studies in this literature are broadly agnostic on whether the phenomenon of NE is good or bad, but are instead critical of the construct itself on the grounds that it provides a weak conceptual representation of the underlying phenomenon.

The implications of this friction for the future course of the NE literature are beginning to take shape. Although the binary classification of entrepreneurial activities as being either necessity- or opportunity- driven remains – for now – a popular approach, some key developments in this research literature signal that a departure from "business as usual" has already begun. Reflecting the growing opposition to this dichotomy, GEM, which has been by far the most prominent source of empirical data on NE over the past 20 years, recently changed how the construct is operationalized: rather than presenting necessity and opportunity as categorical opposites, GEM now captures NE via a standalone Likert scale measure, which sits alongside three similar measures in the GEM questionnaire. The neighboring measures capture the extent to which venture initiation was driven by financial motives ("the desire to build great wealth or a very high income"), prosocial motives ("the desire to change the world"), and family-based or

socioemotional motives ("the desire to continue a family tradition") (Bosma, Hill, Ionescu-Somers, Kelley, Guerrero, & Schøtt, 2020).

Historically, the broad appeal of the NE construct has rested on the idea that, even if – in the messy world of entrepreneurial practice – "opportunity" plays some part in driving NE (and, by the same token, "necessity" plays some part in driving OE), entrepreneurs themselves have tended to be relatively decisive in self-selecting between one category and the other (Dawson & Henley, 2012). Changes to operationalization protocols, such as those implemented by GEM, pave the way for a more complex picture to emerge. Although the full effect of those changes will not be apparent for some time,[4] early results from GEM illustrate a clear departure from the conceptual orthodoxy of the NE-OE dichotomy. When asked to rate the salience of each of the four factors in their decision to become self-employed, entrepreneurs across the 47 economies that are represented in GEM's 2021/2022 Global Report rated an average of two as important or very important (authors' calculations). It is evident, in fact, that a sizable share of entrepreneurs in some economies selected all four options presented to them: among the South African respondents, for example, 85% reported being driven by necessity, 83% by financial motives, 81% by prosocial motives, and 63% by the desire to continue a family tradition (Hill, Ionescu-Somers, & Coduras, 2022: 172).

Decoupling NE from OE marks an important line in the sand for how we conceptualize NE, but it also makes for a deeply uncertain outlook for this literature. NE and OE have become an extremely well-established conceptual pairing – only a handful of the 197 studies in our review (e.g., Dey, 2016; Singh, Dutt, & Adbi, 2021) discuss NE without making explicit reference to OE as a

[4] Although GEM incorporated this change into its survey instrument ahead of its 2019/20 Global Report, the underlying data has not, at the time of writing, yet fed into published work. The trends that we describe here are derived from GEM's most recent global reports, which include up-to-date summary data.

categorical opposite – and recent efforts to conceptualize NE independent of OE have sparked further debate (Coffman & Sunny, 2021; Dencker et al., 2021; O'Donnell, O'Gorman, & Clinton, 2021). Confronting this uncertainty, we conclude our paper by discussing how future work might navigate the many challenges and tensions – and, indeed, the opportunities – that our integrative review has revealed.

TAKING STOCK AND LOOKING AHEAD: POSSIBILITIES AND PROSPECTS FOR NE RESEARCH

We distil what we perceive to be the main possibilities or prospects for the future course of this literature into four broad pathways, which we use to structure this discussion (see Table 2). As a corollary to the idea that the NE construct is – or that it has been used in a way that is – crudely simplistic, Possibility 1 involves an "epistemological rupture" (Bachelard, 1938), where usage of the construct is avoided in an effort to escape the simplifying assumptions to which it has given rise. Possibility 2 corresponds loosely to a status quo that is characterized by "conceptual stretching" (Sartori, 1970), which has been an ongoing feature of research in this area, and which has been a key factor in the tensions that we have already described. Reflecting our belief that many of the issues that surround the NE construct can, in fact, be 'conceptualized away', we delve more deeply into Possibilities 3 and 4, which centre on the strategies that the field might employ to overcome these issues, as well as the new avenues of research that open up as a result. Possibility 3 proposes a pared-back re-conceptualization – or a *de*conceptualization – of NE which is grounded in the principle that, as a conceptual category that applies across diverse contexts and therefore must accommodate considerable internal heterogeneity, researchers should take care not

to over-reach when identifying the category's defining attributes. Finally, Possibility 4 focuses on themes and issues that have remained neglected by NE research, and explores how new ways of approaching NE might provide us with the perspectives that are needed to more systematically address these gaps.

==== Insert Table 2 about here ====

Possibility 1: Epistemological Rupture

A person's view of the social world is conditioned by the meanings and images that are embedded in the language that is routinely used to represent it (Grant, Keenoy, & Oswick, 1998; Phillips, Lawrence, & Hardy, 2004). When the habitual use of such language impedes people from seeing the social world – or particular aspects of it – in novel ways, language can become an "epistemological obstacle" (Bachelard, 1938). It may be helpful, in those circumstances, to discard from regular use the terms that prevent understanding or impressions of a social phenomenon from evolving in line with new ideas and evidence. Such a reflexive change in representational practice can be thought of as an "epistemological rupture" (or "epistemological break") (Bachelard, 1938). Notably, the construct of "institutional void", the literature around which intersects to some extent with the literature on NE, has been the subject of recent calls for an epistemological rupture on grounds of ethnocentrism and conceptual ambiguity (Bothello, Nason, & Schnyder, 2019).

For many scholars, the construct of NE is conceptually flawed in ways that distort our understanding of the underlying phenomenon (O'Donnell et al., 2021; Sarkar et al., 2018). Such criticisms, as we have already seen, revolve around both construct validity and depiction, which

many have argued is excessively normative (i.e., pejorative) (Rosa, Kodithuwakku, & Balunywa, 2006; Welter, Baker, Audretsch, & Gartner, 2017). In some cases, these criticisms have preceded calls for a fundamental reorientation of the literature, beginning with the construct itself being discarded outright (Williams & Williams, 2012).

While such an eventuality may seem like an unlikely one given the proliferation of the NE construct throughout the entrepreneurship literature – and beyond – over the past two decades, there are in fact some signs that an epistemological rupture might already be under way. For example, the construct is no longer used within the GEM reports to refer to instances of entrepreneurship which are initiated, in whole or in part, because of a scarcity of livelihood alternatives. As the NE–OE dichotomy was replaced by multiple independent, Likert items, the terms "necessity entrepreneurship" and "opportunity entrepreneurship" were also largely eliminated. Therefore, although recent GEM reports have illustrated that necessity – or the need to earn a living in the context of limited employment options – is a more prominent catalyst for entrepreneurship than had previously been thought,[5] explicit references to the NE construct within its more recent annual reports have been extremely scarce. Within GEM, which is where the term first came to prominence, the construct of NE now appears to be largely obsolete.

We do not share the view that an epistemological rupture is desirable. Although we recognize that much of the criticism that has been directed at the NE construct is well-founded, it is noteworthy that a large majority of the studies that we reviewed used the construct to good effect to account for empirical variance. Across these studies, NE was consistently found to be distinguishable from

[5] 37 economies were represented in GEM's Global Report in both the year immediately preceding, and the year immediately following, the introduction of the new NE operationalisation (2018/19 and 2019/20, respectively). Across these 37 economies, rates of NE were reported to be, on average, 39 percentage points higher after the revised approach to operationalising NE was enacted (author's calculations).

other categories of economic action (principally OE) along theoretically important dimensions like innovativeness, resilience, and profitability (Ahunov & Yusupov, 2017; Mrożewski-Kratzer, 2017). Although the NE–OE distinction is one that has well-documented conceptual shortcomings (Puente et al., 2019), it has proven to be a distinction of considerable empirical substance. Moreover, the extent to which the construct of NE has become embedded in the theoretical terminology of entrepreneurship research suggests that any epistemological rupturing that does occur might only be partial. Even though the NE construct has been largely expunged from GEM's annual Global Report, for example, it continues to appear in many of its national reports (e.g., Hart et al., 2021).

Given the close conceptual relationship between NE and OE, it is worth noting here that our prognosis for the NE construct – that its disappearance is neither imminent nor desirable – does not necessarily extend to OE. Much of the opposition to this dichotomy stemmed from the view – which several qualitative studies claim to confirm (Adom, 2014; Welter & Smallbone, 2006; Xiong et al., 2017) – that, although NE might be associated with lower quality-opportunities (Galappaththi, Galappaththi, & Kodithuwakku, 2017, Nikiforou et al., 2019; Sohns & Revilla-Diez, 2018), opportunity is itself integral to entrepreneurship in all of its forms, including NE (Sarasvathy, Dew, Velamuri, & Venkataraman, 2003). As Short et al. (2010: 40), remark, "Without an opportunity, there is no entrepreneurship." In other words, acting on what one perceives to be a viable market opportunity is not *a form of* entrepreneurship, rather, it *is* entrepreneurship. "Necessity", as an adjective or conceptual modifier, serves to highlight the wider livelihood constraints within which some of these activities are conducted, but, as recent theoretical work has emphasised (Dencker et al., 2021), such constraints do not, in themselves, preclude a concern for

opportunity.[6] The changes made by GEM, which dissolve the OE construct into three lower-order categories – financial motives (the desire for wealth), prosocial motives (the desire to change the world), and socioemotional motives (the desire to continue a family legacy) – suggest that, while the NE construct appears well-placed to survive the dismantling of the traditional NE–OE dichotomy, prospects for the OE construct appear less certain. In keeping with the idea that this literature is evolving away from its historical reliance on the NE-OE dichotomy, we take care not to steer future work back towards this dichotomy by proposing new ways to compare and contrast these categories. We focus instead on the possibilities that exist for building a richer and more conceptually robust nomological network around NE.

Possibility 2: Continued Conceptual Stretching

Conceptual stretching has been a clear source of tension in the NE literature. Conceptual stretching occurs when a phenomenon or case is included in a conceptual category even though it might appear incongruous there (Sartori, 1970). This usually requires that we either "fudge" the boundaries of that category, or overlook or understate certain features of the case at hand. Although most studies define and conceptualize NE in terms that are similar to GEM (i.e., as entrepreneurial activities that people perform to earn a living in the absence of livelihood alternatives), many studies incorporate "secondary" concepts or characteristics – like poverty, an overriding preoccupation with survival, deficiencies in entrepreneurial orientation or aptitude, or inferior outcomes – into their definitions of NE (i.e., the construct's *intension*). While secondary

[6] On the contrary, some studies argue that necessity itself constitutes an opportunity, in that it "pushes" people to reimagine their economic futures and to explore possibilities that they would otherwise have overlooked or neglected (Anderson, El Harbi, & Brahem, 2013; Xiong et al., 2020).

commonalities of this kind have been shown to exist, the critiques that have surfaced suggest that they do not faithfully reflect all instances and varieties of the phenomenon (the construct's *extension*[7]), and therefore perform poorly as "intensional material".

Conceptual stretching curtails scope for analytic differentiation, which refers to the need for a concept or category to accommodate some internal heterogeneity in order to be useful across a meaningful range of use cases (Collier & Levitsky, 1997). For this reason, instances of NE that demonstrate strong innovation performance or a substantial economic impact are unlikely to be recognized as such when outcomes of this kind are associated instead with OE, and when OE is framed as a categorical opposite of NE. Often, cases like these are presented as confounding findings which highlight internal contradictions in how NE is conceptualized. These internal contradictions have variously been portrayed as fatal flaws – due cause for an epistemological rupture (Williams & Williams, 2012) – and as cues for fresh attempts at conceptual advancement (Dencker et al., 2021; Puente et al., 2019).

This has, in many ways, become the defining pattern of this literature. On the one hand, a broad base of empirical research has cemented NE's conceptual association with capital deficiency, smallness, and strategic conservatism to the point where many studies treat some or all of these as constituent parts of the construct's intension (Burtch et al., 2018; Kontolaimou et al., 2016; Todorovic & McNaughton, 2007). On the other hand, studies – particularly those using in-depth, qualitative methods – routinely highlight cases of entrepreneurship that are instigated chiefly because of a lack of livelihood alternatives but that otherwise do not adhere to the conceptual

[7] Intension refers to the properties or attributes that are associated with the construct in the abstract, while extension refers to the array of people and activities that are considered referents, or concrete embodiments, of it in the real world.

prescriptions of NE (or that deviate from these prescriptions over time). Although these criticisms have mounted in recent years, they appear to have had little or no effect on the popularity of NE as a classificatory device. This has served to further feed critiques relating to construct validity (that NE is excessively reductive) and to an under-appreciation of internal diversity (where these 'anomalies' get crowded out or overlooked). Possibilities 3 and 4, which follow, revolve around conceptual strategies for addressing these problems, and identify new avenues for future work that open up as a result.

Possibility 3: *De*conceptualization

We do not believe that the conceptualization problems surrounding NE are irremediable. A common reason for dislocation between intension and extension is the tendency to over-conceptualize, where a phenomenon is associated with an excessively long list of defining attributes, or where too much is "packed into" a construct's intension. As Collier and Levitsky (1997: 434) point out, "concepts with *fewer* defining attributes commonly apply to *more* cases … whereas concepts with *more* defining attributes apply to *fewer* cases" (italics in original). Sartori (1970) referred to this principle as the "ladder of abstraction," and made it integral to his writings on the application and evolution of conceptual categories.

In line with this principle, it is generally accepted that higher-level conceptual categories – those that span heterogeneous contexts – function best with minimal intension, thus allowing for a broad extensional range (Sartori, 1970). Although the NE literature chiefly comprises large, multi-country studies in which the NE construct is invoked for the purposes of high-level comparison, the evidence that has emerged from our review suggests that its intension has become relatively –

and perhaps unnecessarily – dense. As a consequence, we routinely see these intensional representations challenged on the grounds that they crowd out diversity and individual difference (Amorós et al., 2019; de la Chaux & Haugh, 2020; Puente et al., 2019). In place of a reconceptualization of NE, we thus propose a *de*conceptualization of NE; that is, a paring back of extraneous or superfluous concepts that deepen intension at the expense of extensional range or, in some cases, construct clarity. We pay particular attention here to the concepts that are widely referenced as core definitional attributes of NE, three of which (namely opportunity, motivation, and survivalism) came to the fore in our review of the literature. Below, we illustrate why the scope for misrepresentation and conceptual ambiguity increases when one or more of these elements forms part of the intensional framing of NE.

Opportunity. As we have already noted, the traditional dichotomy between NE and OE has given rise to the idea that "opportunity" lies squarely within the domain of "opportunity entrepreneurship", which is manifested extensively in how NE is defined (e.g., "[n]ecessity entrepreneurship comprises of individuals who decide on entrepreneurship without considering any entrepreneurial opportunity" [Mrożewski-Kratzer, 2017: 1129]). We have also outlined some empirical and conceptual arguments that challenge this view (Dencker et al., 2021; Nikifourou et al., 2019), and have highlighted that it is no longer implied within GEM's operationalization of the NE construct. In a broader sense, using opportunity as a definitional basis for NE creates a definition predicated on *negation*. That is, rather than NE being defined in terms of what it is, it is defined instead in terms of what it is not; i.e., when someone starts a business to take advantage of a market opportunity, this is *not* NE. There are two issues of concern here. First, defining a construct by means of negation is generally looked upon as something that should be done only when it cannot be defined in its own terms (Sartori, 1970), which is not the case for NE. Second,

if NE were to be defined by negation, agency, which we understand as the freedom that a person has to choose between an array of possible alternatives (Sen, 2001), is likely to make for a more fruitful counterpoint than opportunity, because agency and necessity sit comfortably at either poles of a continuum in the way that opportunity and necessity do not. As an anonymous reviewer, quoted by Hilson, Hilson, & Maconachie (2018: 291), pointed out: "the distinction between necessity and opportunity implies that they are opposite in some sense, you are either a necessity-driven entrepreneur or an opportunistic entrepreneur, or more likely, somewhere between…But the opposite of necessity is not opportunity and vice-versa." In other words, being pushed into entrepreneurship by necessity is not incompatible with the pursuit of an opportunity (Nabi et al., 2015; Williams & Williams, 2012), but it is incompatible with the ability to exercise one's agency to its full extent in choosing an occupation.

Motivation. NE is widely defined as self-employment that is *motivated* by an inability to secure better work; nominally, therefore, motivation is generally seen as the "glue" that holds the conceptual category of necessity entrepreneur together. However, theories of motivation are themselves numerous (Steel & König, 2006; Steers, Mowday, & Shapiro, 2006), and within the NE literature, approaches to the topic of motivation are eclectic and fragmented. In certain behaviorist traditions (Michael, 1993), the lack of decent or desirable work might, in and of itself, be considered a motive to engage in entrepreneurship, much in the same way that a lack of food might be considered a motive to go in search of something to eat. Too often, however, "necessity motives" are conceptualized through a behaviorist lens, where external stimuli are seen as doing the "work" of motivation, while "opportunity motives" are conceptualized through a lens which affords much greater prominence to cognition and effect, such as expectancy theory (Vroom, 1964), self-determination theory (Deci & Ryan, 2000), or goal-setting theory (Locke, 1968). All

of these perspectives frame motivation as the derivative of complex cognitive processes, not just of external circumstances, as is typically the case in behaviorism. Some in the field of psychology have gone so far as to argue that what behaviorism offers is "an essentially nonmotivational account of the causality of human behavior" (Ryan, Lynch, Vansteenkiste, & Deci, 2011: 205). Put differently, it is not simply a lack of food that motivates a search for something to eat (the lack of food is purely situational), but also a desire to sate one's hunger, or to avoid the onset of hunger at a future time point.

In this respect, the problem is not that one theory of motivation (e.g., behaviorism) is predominant, it is that different theories of motivation – which incorporate very different sets of starting assumptions around things like autonomy, cognition, and affect – are routinely conflated. This is most commonly manifested in the assertion that, for some entrepreneurs, motivation functions as an internal force, whereas, for others, it functions as an external force (for example, "[i]nternal motivations refer to a voluntary intention to take advantage of an opportunity, as opposed to external motivations that reflect an individual's need to start an activity due to the absence of other alternatives" [Figueiredo & Paiva's, 2018: 345]).[8] Reducing motivation to *either* an external or an internal force is Much of the friction in the NE literature reflects a dissonance between the latent assumptions that accompany different perspectives of motivation. At best, this conflation serves to hide from view the richness and diversity of NE; at worst, it dehumanizes NE by implying that necessity entrepreneurs have a seriously diminished capacity for reflexivity, and that they do not

[8] Tellingly, some studies (e.g., Abdallah et al., 2022) take the inverse view, where NE is conceptualised as a function of internal motivations, while OE is seen as a function of external motivations. This ambiguity is compounded by the occasional use of "intrinsic" and "extrinsic" motives (e.g., Xavier-Oliveira et al., 2015) – which only correspond loosely to "internal" and "external" motives – as a basis for distinguishing NE from OE.

hold beliefs, aspirations, and self-concepts that shape how they respond to external stimuli (De la Chaux and Haugh, 2020; O'Donnell et al., 2020).

Survivalism. Exemplified by the view that it is "poverty-driven, and the motivation for starting a new business is to create a job for survival" (Jafari-Sadeghi et al., 2021: 649), NE is widely portrayed as a final backstop for those at imminent risk of poverty and destitution (Edoho, 2016; Gibson, 2014; Hilson et al., 2018). In reality, the NE literature is populated by a much more diverse collection of actors, a large share of whom live in nations with advanced welfare systems which are designed to ensure that unemployment does not constitute an existential risk to a person's survival.

Moreover, since the salience of "necessity" is typically self-reported, some degree of subjectivity is inherent. Not only does this mean that a certain *grade* of necessity might induce entrepreneurial action in one person but not in another, but also that necessity might differ in *form* from person to person. We see evidence, for example, of elderly people turning to entrepreneurship because they encounter access barriers in the jobs market that are specific to their age demographic (Moulton & Scott, 2016). Similarly, we see parents – particularly mothers – opting out of salaried work, and into self-employment, because their work does not afford them the flexibility to fulfil both their professional and domestic responsibilities well. For these entrepreneurs, and for most entrepreneurs in developed nations, "necessity" stems from something far different from – and, in general, far more complex than – a pressing concern for one's survival (O'Donnell et al., 2021). Even in developing nations, where the precarity of wage work can make entrepreneurship seem secure by comparison, framing NE as something to which people resort only when all other options have been exhausted can warp the link between intension and extension, as ostensibly archetypal cases are pushed outside of the construct's extensional reach (Sarkar et al., 2018).

With this in mind, we suggest that, in place of a preoccupation with opportunity, survival, or an absence of "pull" motives, *a lack of decent or desirable work* be used as the main intensional basis of NE. We use the term "decent" because livelihood alternatives often do exist, but to pursue those alternatives might place a person's health or well-being at risk, infringe on their dignity, or yield a very low or irregular income, effectively trapping them in relative poverty (see, for example, the International Labour Organization's formulation of "decent work"; Ghai, 2003). "Desirable" is used to reflect the subjective dimension of necessity. Work alternatives might exist that are "decent" in objective terms, in that they might support a standard of living that is broadly in line with societal norms, but these options may not be desirable to, or suitable for, certain people or groups – perhaps because remuneration levels are incommensurate with a person's education and experience, or because a person's personal or family circumstances limit their ability to participate fully in the jobs market.

In defining NE as entrepreneurial activities that are performed primarily because of a lack of decent and desirable work, our central aim is to ensure that NE is conceptually adapted for high-level comparative work, which has been the most prevalent use case for the NE construct to date (e.g., McMullen et al., 2008; Valdez & Richardson, 2013). While NE is often stereotyped as subsistence-grade self-employment in poor regions (Adom, 2014), the people and practices that populate this literature are strikingly diverse. In addition to those living in, or at risk of, poverty in the developing world, self-employment attracts people who are unemployed or in precarious employment (Burtch et al., 2018); parents whose work schedules do not allow them the time or flexibility to fulfil their family responsibilities (Foley et al., 2018); immigrants or members of minority groups who, because of discrimination or a lack of financial, social, or cultural capital, find themselves on the periphery of the labor market (Davidson, Fielden, & Omar, 2010); artists and artisans for whom

there are no other professional outlets for their talents (Pret & Cogan, 2019); and those entering, or re-entering, the job market during an economic downturn (Fossen, 2020). We have argued that NE can accommodate this level of empirical diversity only when its intension is light, or, in other words, when it is conceptualized in such a way that does not presuppose that these disparate groups share anything in common other than an inability to secure decent or desirable work.

Although NE has been used predominantly for high-level comparative work, the range or scope of that comparative work has been relatively narrow, in that extant representations of NE tend to be predicated almost exclusively on direct comparisons between NE and OE. The decoupling of NE from OE provides an opportunity to reflect on what other frames of reference might be employed to give us a more textured understanding of what drives NE and how we might evaluate its micro- and macro-level outcomes. In encouraging future research to continue to engage in high-level comparisons between NE and other forms of economic action, we place a particular emphasis on the need to broaden the scope of such comparative work by incorporating into it types of economic action other than entrepreneurship.

Comparative work can, and should, look beyond OE (and, indeed, entrepreneurship that is driven by financial, prosocial, and/or socioemotional motives) as a frame of reference for NE. Before becoming necessity entrepreneurs, people do not weigh up whether they should instead become opportunity entrepreneurs; most will, however, weigh the relative merits of NE against whatever grade of salaried work is available to them, and/or against unemployment (Burtch et al., 2018; Laffineur, Barbosa, Fayolle, & Nziali, 2017). In this respect, non-entrepreneurs – particularly low- and middle-income salaried workers and those who are unemployed – provide a much more meaningful frame of reference for appraising NE than OE does. Only a very small number of studies in our review incorporated non-entrepreneurs into their empirical sample (e.g., de Vries et

al., 2020; Moulten & Scott, 2016; Sevä, Larsson, & Strandh, 2016; Williams, 2009), negating the possibility of comparisons of this kind. Key topics for investigation here include the following:

- What kinds of jobs do people forego (in different contexts) in order to engage in NE?
- What distinguishes necessity entrepreneurs (e.g., psychographics, relational factors, human capital, resource endowments) from the people who do take on these jobs (or remain unemployed)?
- Do people fare better – either financially or in terms of other facets of well-being – by opting for NE over these other jobs/unemployment?
- What is the impact on local and national entrepreneurial ecosystems of people switching from unemployment or employment into NE?

Possibility 4: Reimagining the Nature of the NE Category

Thinning out the intension of a construct can be a way of optimizing it for *inter*-category comparison; in the context of NE, inter-category comparison has traditionally been between NE and OE, although we have called for future work to look to salaried employment and unemployment as alternative frames of reference. Inter-category comparison is an effective way of identifying features which differentiate a focal group from a referent group, but it can often obscure diversity within the focal group itself. This is a widely acknowledged problem in the NE literature, where a concentration of research focus on the differences *between* NE and OE has come at the expense of a concern for diversity *within* NE, i.e., *intra*-category variance (Bergmann & Sternberg, 2007; Dencker et al., 2021; Tonner & Wilson, 2015). To engage meaningfully with this

kind of intra-category variance calls not so much for a formal reconceptualization of this particular construct, but for a broader reimagining of the nature and role of categories in comparative work.

The "classical view" of categories proceeds from the notion that concepts grow around cases or phenomena that share a common set of attributes (Collier & Mahon Jr., 1993), and category boundaries evolve along the "ladder of abstraction," meaning that when we want to broaden a category's extensional range, we thin out its intension. However, thinning out intension in this way has obvious downsides, most notably that the construct becomes increasingly unidimensional and loses much of its descriptive richness (Gerring, 1999). While this allows the construct to better *accommodate* internal diversity, it does little to *reveal* what that diversity actually looks like. Moreover, it may not be an effective way of incentivizing researchers to channel their focus towards archetypal cases of NE, where factors that tend to correlate with a scarcity of decent and desirable work, such as poverty, are more pronounced. Below, we outline two alternatives to the classical view of categories, emanating from which are specific lines of inquiry that align to these problems.

NE as a radial category. Radial categories are formed by subdividing a central category according to secondary attributes that are shared by some members but not others, for the purposes of facilitating internal comparison (Collier & Mahon Jr., 1993). Because they are formed by grouping similar cases into clusters or subcategories, these subcategories will have a broader range of defining attributes – meaning their intension will be deeper – than the overarching, super-ordinate category from which they emerged. Motivated by the view that NE research has tended to account poorly for the immense diversity of the phenomenon itself, Dencker et al.'s (2021) recent reconceptualization deviated from the classical view of categorization that had, until then, been predominant in this literature, and instead positioned the construct within a radial structure.

They argued that NE as a central or super-ordinate category could be conceptualized as a function of the imperative to fulfil a person's "basic needs" – a composite term encompassing physiological and safety needs (Maslow, 1943) – but that the specific needs that are salient will be contingent on contextual factors. In essence, radial categories were formed to reflect patterned differences in NE across developing- and developed-world contexts, on the premise that NE in developing countries is oriented towards a person's physiological needs, while in developed countries it is oriented towards a person's safety needs.[9]

The NE literature has, perhaps more so than any other domain of entrepreneurship research, cast its empirical net across an extremely broad range of geographic and economic contexts. As many scholars have lamented (Amorós, Ciravegna, Mandakovic, & Stenholm, 2019; Dencker et al., 2021; Ferrín, in press; Franck, 2012), however, context has rarely been at the forefront of efforts at conceptual advancement in the area of NE, and instead tends to be backgrounded or controlled away (Johns, 2006). A greater understanding of radial categories, and how they can be used as a complement to higher-level comparative work, can help to overcome the problem of "too many contexts, too little context". In identifying some of the key themes and questions that the radial category perspective might be well-equipped to explore, we stop short of an attempt to formulate a definitive set of radial categories. Instead, we advocate for a more flexible use of radial

[9] We have argued elsewhere that Dencker et al.'s (2021) re-conceptualization of NE reinforces the dislocation between intension and extension that has surrounded this construct for many years (O'Donnell et al., 2021). We challenged the idea that NE in general is driven exclusively by a concern for one's "basic needs", and that NE in developing countries is driven exclusively by a concern for one's physiological needs, on the grounds that it is conceptually restrictive and out of step with what has been described in the literature (see also Coffman and Sunny, 2021). However, we agree with Dencker et al.'s (2021) assertion that the NE literature has generally painted too homogeneous a picture of the phenomenon.

categories, one in which the categories are chosen to reflect the context or the analytical aims of the study in question.

GEM's new classificatory framework, which positions NE alongside financial motives, prosocial motives, and family-based or socioemotional motives, provides obvious scope for radial categorization. Along with the changes that have been made to the makeup of this framework, we may also wish to reimagine the nature of the relationships between the constructs within it. Rather than seeing necessity as one of four motivational types, we might instead consider "necessity" as a context for the other three (see Appendix F). Our logic here is twofold. First, the data that has emerged since GEM revised its approach to operationalizing NE makes clear that entrepreneurship is often a product of two or more of these factors, therefore signaling a need to treat them as a gestalt in which the presence of one has some effect on the potency of the other(s). In other words, research should treat these factors as symbiotic rather than as independent of each other (Anderson et al., 2014). Second, the absence of necessity does not indicate the irrelevance of necessity. Where necessity is low or absent, agency is high, meaning that people have multiple options from which to choose. How people use that agency – for example, whether they set about getting rich, changing the world for the better, or extending a family legacy – is an important issue in its own right. Along these lines, research might wish to investigate the following questions:

- To what extent does necessity tend to coincide with financial motives, prosocial motives, and socioemotional motives?
- How does the level or salience of necessity impact on a venture's likelihood of success across financial, prosocial, and socioemotional motives?
- Under what circumstances do prosocial and socioemotional motives become a salient part of NE?

The diverse array of motivations that necessity entrepreneurs report has been a longstanding source of conceptual tension in this literature (de la Chaux and Haugh, 2020; Nabi et al., 2015), given the widespread notion that the NE construct is predicated on what is routinely described as the "necessity motive". We have argued that it is not motive, but rather circumstance – the inability to obtain decent or desirable work – that underpins the construct. Motives, of course, help to determine what constitutes "decent or desirable", but we do not presume that the motives underlying NE are any less diverse than those underlying high-growth entrepreneurship, social entrepreneurship, or other forms of economic action. While we assume that the nature of necessity is similar across contexts, in that it always constitutes an inability to obtain decent or desirable work, we assume that the motives that give meaning to "decent and desirable" will differ significantly across contexts. If the principal motive is to fend off extreme poverty, it is likely that the "decent and desirable" threshold will be set quite low (Alvarez & Barney, 2014). If the motive is longer-term upward mobility, or the desire to ensure that fulfilling domestic responsibilities does not come at the expense of one's career, the meaning of "decent and desirable" takes on something of a different slant (Foley et al., 2018). Radial categories might well evolve around what such investigations uncover. Given the extensional elasticity that is currently demanded of the NE construct – both informal street vendors in low-income countries and skilled tradespeople and artists in affluent, developed-world cities could potentially represent instances of NE – these radial categories could form the basis for a more contextualized approach to the study of NE. Future research could investigate the following questions:

- How do different motives shape what constitutes "(un)desirable" work?
- How do prior employment experiences shape what constitutes "(un)desirable" work?

- How far short of this threshold are the work alternatives available to necessity entrepreneurs in different contexts (if any such work alternatives exist)?
- Where the desirability gap is low (i.e., work alternatives are "nearly good enough") why do some people opt for self-employment and others for salaried employment?
- To what extent do differences in motive explain variations in the longevity of enterprises established out of necessity? For example, is a career in self-employment seen to be more conducive to long-term social mobility than it is to day-to-day security, and could this help to explain variation in exit rates among necessity ventures?

Thanks to an abundance of multi-country comparative studies, we now have a rich understanding of the social and institutional conditions that engender NE (Angulo-Guerrero, Pérez-Moreno, & Abad-Guerrero, 2017; Beynon, Jones, & Pickernell, 2016). However, much of this work carries highly deterministic assumptions about the relationship between the institutional environment and human action, wherein the decision to pursue self-employment is viewed purely as a function of external forces (structure), with little or no regard for individual aims and attitudes (agency). In many ways, the construct of NE has itself constituted an overcorrection, emanating as it did from the need to better account for the significance of structure – i.e., cultural and material constraints – in efforts to explain why and how people engage in entrepreneurship. Whereas the assumptions of limitless agency that characterized much of the early work in entrepreneurship have now been tempered by a growing theoretical concern for structure, the NE literature remains deeply preoccupied with structure, with agency relatively invisible by comparison. Ideas like "embedded agency" (Battilana, Beca, & Boxenbaum, 2009), which recognizes that structure and agency are co-present in all forms of social action, provide an avenue for work in this area to engage more

meaningfully with the nature and role of agency in NE. Here, radial categories might centre on the nature and severity of the constraints that people experience, as well as the enabling systems that people develop to circumvent or overcome them. Some questions that future research may seek to answer include:

- To what extent do necessity entrepreneurs see their livelihood as an achievement which is to be positively valued?
- Aside from the extent to which *choosing* self-employment is a function of agency versus structure, to what extent are the strategic decisions that necessity entrepreneurs make *within* self-employment a function of agency versus structure?
- How substantial are the entry barriers that necessity entrepreneurs overcome? (Consistent with the need to look beyond OE for frames of reference that are appropriate to NE, we encourage researchers to frame such barriers in terms of the capital that is accessible to those who might be considered potential necessity entrepreneurs in the context under study, not in terms of the entry barriers that opportunity entrepreneurs face.)

A common misconception is that high or increasing rates of NE are universally indicative of policy failure. In many circumstances, governments purposively facilitate entry into self-employment for those whose prospects for decent work are limited. In the development studies literature, the importance of (necessity) entrepreneurship as an income diversification strategy for poor households that rely on subsistence agriculture or other forms of precarious, low-paid work is well established (Gindling & Newhouse, 2014; Margolis, 2014). In more developed contexts, ushering

people out of long-term unemployment and into self-employment is becoming an increasingly popular way of promoting economic inclusivity and reducing the burden of social welfare costs on state finances (Garcia-Lorenzo, Donnelly, Sell-Trujillo, & Imas, 2018). Given the emergence of such programs in various parts of the world, coupled with the widespread use of unemployment as a proxy for necessity (Fairlie & Fossen, 2018), the paucity of empirical work aimed at systematically evaluating whether they deliver value for money is regrettable (Laffineur et al., 2017). Radial approaches fit well with the task of understanding "when" and "why" some necessity-driven enterprises achieve success, and of strengthening policy in this area. Some potential avenues for future inquiry include:

- What proportion of entrepreneurs who cite necessity (a lack of decent or desirable work alternatives) as a primary reason for *entering* into self-employment continue to cite it as a reason for *remaining* self-employed 1, 5, or 10 years (or more) thereafter?
- Among the entrepreneurs for whom necessity is salient at the beginning but less so thereafter, what, beyond the necessity factor, changes? Do behavioral changes follow, and, if so, in what way and to what extent (e.g., are necessity entrepreneurs more inclined to adopt particular strategies; do they achieve better performance outcomes)?
- Can we use individual or contextual factors to predict which "types" of necessity entrepreneurs (e.g., those with higher levels of human capital; international/domestic migrants; those operating in more collectivistic/individualistic cultures) are most likely to evolve in this way?
- How does an individual's experience of NE impact on their subsequent assessments of entrepreneurial desirability and feasibility? What moderates this relationship?

- How might governments strike an optimal balance between "carrot and stick," such that the opportunity costs of self-employment (e.g., social welfare benefits) do not disincentivize participation, while simultaneously ensuring that already vulnerable social groups are not further exposed to economic uncertainty and hardship?
- Aside from helping economically vulnerable groups to build an income and cultivate financial independence, what is the impact on human capital of programs aimed at promoting self-employment?
- Do people see/use such programs as a stepping stone into salaried employment or as a pathway into long-term self-employment?
- Where necessity-driven enterprises exit the market, is this predominantly voluntary exit or failure? What implications does this have for the efficacy of such programs?

NE as a family resemblance category. Rather than being built around a single attribute (or set of attributes) that all referents share, family resemblance categories comprise members whose overall attribute set makes them similar to one another, even if the specific attributes that make up that set are not the same (Medin & Wattenmaker, 1987). For example, where Case 1 has an attribute set ABC, Case 2 has an attribute set BCD, Case 3 has an attribute set ABD, and Case 4 has an attribute set ACD, it may make sense to group these cases into a category based on their overall similarity – or "family resemblance" – even though no single attribute is common to all four cases (Rosch, Mervis, & Hampson, 1975). Family resemblance categories are therefore predicated on prototypicality, where category membership is governed less by the presence or absence of discrete attributes, and more by the extent to which the case conforms, in a holistic way, to broader notions of what the category represents (Collier & Mahon Jr. 1993).

Where categories that span a broad contextual range are premised on a single parameter – in the way that NE can be premised on the lack of decent or desirable work – there is a danger that some of those cases that are included will differ more significantly from that category's archetype than some of the cases that are excluded. While this heterogeneity is valuable for generalizability, greater homogeneity may be needed for certain kinds of theoretical aims (Robinson, 2014). For example, higher levels of sample homogeneity are essential for process theorizing, which is concerned with emergence and evolution, and which can be distinguished from variance theorizing, which focuses on the causal influence that some variables exert over others (Zahra, 2007; McMullen & Dimov, 2013). Overwhelmingly, the NE literature has favored variance theorizing over process theorizing, which is reflected in the predominance of classical approaches to categorization. Among the relatively small number of NE studies that adopt a process view, there is a marked tendency to use necessity as a broad-strokes descriptor of the entrepreneurial context (Garcia-Lorenzo et al., 2018; Hunter & Lean, 2018), rather than as a discrete variable used to explain divergent outcomes.

Along these lines, we see particular scope for the logic of the family resemblance category to further theoretical integration between the NE literature and the neighboring work on entrepreneurship in socioeconomically disadvantaged environments (DeClercq & Honig, 2011; Peredo & Chrisman, 2006; Sutter et al., 2019). Although the archetypal necessity entrepreneur is one who lives in a low-income country and whose entrepreneurial activities yield little more than a subsistence income, the degree of overlap between the NE literature and the growing literature on entrepreneurship in contexts of extreme poverty is surprisingly small. To more accurately gauge the extent of this disconnect, we compared the 197 articles in our review – which we consider to be a representative sample of the broader NE literature – with a sample of 280 similar articles from

the entrepreneurship and poverty literature. We collated the latter by repeating the search procedures set out in a recent systematic review on the topic (Sutter et al., 2019), thereby picking up not only the articles that were included in that review, but also the articles that *would have been* captured by the review had it been performed around the same time as our own.[10] The results of this comparison are striking. On a superficial level, only 15 articles, accounting for less than 8% of the articles in our review, featured (or would have featured) in Sutter et al.'s (2019) review on entrepreneurship in contexts of extreme poverty. A subsequent bibliometric analysis (the full details of which we provide in Appendix G) illustrated the deep-seated nature of this disconnect.

The relatively clean delineation of these literatures is, to some extent, attributable to differences in geographical and thematic focus: whereas the articles in Sutter et al.'s (2019) review focused exclusively on the so-called "Base of the Pyramid," the NE literature applied a much broader focus: of the 197 articles in our review, less than one-third (60) focused exclusively on developing-world contexts. We are of the view, however, that a deeper significance might be attached to this divergence, one that holds important insights for what the subdomain of NE contributes to the wider entrepreneurship literature.

First, while necessity entrepreneurs may be more plentiful in some parts of the world than in others, NE is a ubiquitous feature of the labor economy (Margolis, 2014); that the literature is broadly reflective of the universality of the phenomenon is a rarity in entrepreneurship studies (Welter et

[10] The 280 articles were made up of the 213 articles that were incorporated in Sutter et al.'s (2019) published review plus 67 articles that were published after 2017, which served as the cut-off point for inclusion in their review. Based on our interpretation of their review methodology, we believe that these 67 articles would have been included in their review had that review been performed at the same time as ours. We took this step to enhance comparability between the sample of NE literature that comprises our review and the sample of poverty literature that comprised Sutter et al.'s (2019) review.

al., 2017).[11] Second, the NE construct lends itself naturally to comparative methods. Traditionally, these comparisons have been grounded in much-criticized binary classifications which presuppose that an entrepreneur is acting out of either necessity or opportunity; as data collection conventions become increasingly sensitized to different grades of necessity, we anticipate that while comparative approaches will evolve accordingly (with necessity being used as a continuous variable rather than as a dichotomous variable), the centrality of comparative methods to NE research will endure. Indeed, where the presence, severity, or type of necessity is not being used as a basis of direct comparison, as might be the case in studies that use more homogeneous samples, the added value of the term "necessity entrepreneurship," as opposed to just "entrepreneurship," is not altogether clear. That so much of the literature on entrepreneurship and poverty eschewed the term "necessity entrepreneurship" despite the fact that many of these studies were dealing with archetypal cases of the phenomenon suggests that, in the absence of a clear referent group, the "necessity" adjective was superfluous, if not an unhelpful distraction (e.g., Slade et al., 2018: 433).

Throughout this review, we have encouraged researchers not to view "necessity" as a byword for "poor"; although there is a natural correlation here, poverty is not an intensional feature of NE (Robert, Marques, Lasch & Roy, 2009). Along these lines, we refrain from calling on scholars who are studying entrepreneurship in contexts of poverty to do more to incorporate a "necessity" framing into their work, unless the lack of decent or desirable work is (explicitly) pivotal to their contributions. We do, however, call on researchers in the NE literature, particularly those with an interest in structurally disadvantaged contexts, to better incorporate insights from neighboring

[11] We say "broadly reflective" because we are conscious that countries that do not participate in GEM tend to be systematically underrepresented in this literature. Many of these countries, particularly those in the developing world, have some of the highest rates of NE in the world.

literatures into their work. The entrepreneurship and poverty literature, for example, has attended closely to themes of embeddedness – networks, interpersonal solidarity, collective action, social identity, cultural values, localized knowledge, and others (see, for example, Peredo & Chrisman, 2006; Shepherd, Parida, & Wincent, 2021; Zoogah, Peng, & Woldu, 2015) – which could significantly enrich our understanding of how necessity manifests in these contexts. Scholars might consider the following lines of study:

- To what extent are local notions of "decent or desirable work" governed by cultural factors/informal institutions?
- In contexts of poverty, do higher levels of social capital predispose someone more towards NE, or more towards salaried employment?
- Are higher levels of necessity associated with an inclination towards individualism or collectivism in NE?
- How do NE and community-based entrepreneurship intersect (conceptually and in practice)?

CONCLUSION

Our review of the NE literature has highlighted that the rapid expansion of this field has seen it become increasingly subject to contestation and flux. In this context, the future prospects for this literature remain uncertain. It is clear, however, that, in order for this literature to prosper in the years ahead as it has over the past two decades, careful reflection on what NE is (and, equally, what it is not) is required. In and through this review, we have attempted to provide researchers with the conceptual means to better sensitize their work to the issues and concerns that surfaced in

our audit of the literature. We draw attention to the risk of conceptual stretching, which, given the broad range of socioeconomic contexts across which the NE construct is applied, is particularly pertinent in this literature. On a general level, we stress the need for a "less is more" approach to the intensional formulation of NE, mindful that this is vital for the preservation of the construct's broad extensional range. We also explore possibilities for researchers to approach the conceptual category of NE in ways that unlock fresh avenues of inquiry. To date, empirical work on NE has predominantly taken the form of large-scale comparative research, and it is generally acknowledged that this has come at the expense of a more fine-grained and processual understanding of NE. In proposing novel ways of overcoming old problems – most notably the problem of conceptual stretching – we hope to encourage future work to pose different types of questions and apply a broader suite of methods to answering them, thereby contributing to a richer and more rounded picture of the NE phenomenon, and, in turn, to the continued advancement of this literature. Along these lines, we are of the view that, of the four possibilities for the future course of this literature that we set have out, Possibilities 3 and 4 – which revolve around perseverance and renewal – are altogether preferable to Possibilities 1 and 2 – which involve abandonment and what many researchers consider to be a broadly unsatisfactory status quo, respectively. Although the NE construct has become a focal point for criticism and debate, its proliferation within and beyond entrepreneurship research is illustrative of its capacity to act as a gathering point for scholars to interrogate the role of push factors in driving and shaping entrepreneurship. It is important that, as the landscape of this literature begins to shift, scholars retain sight of the ubiquity and significance of these push factors.

TABLES

Table 1: Valuing NE as an analytical construct

Critiques of NE construct	**Basis of critiques**	**Illustrative quotes from literature**
Appropriateness / validity of "necessity" as a conceptual modifier	• Livelihood alternatives might (and often do) exist • "Necessity" is subjective and culturally grounded rather than objective or absolute • All entrepreneurship is underpinned by agency and volition	"They were driven by economic necessity, although they all identified that they enjoyed their [work] and regarded it as 'more than a job'" (Jones et al., 2017: 226) "These results recommend researchers and policy makers to be cautious when classifying individuals or territories according to the necessity and opportunity entrepreneurial motivations as the significance of these two types of entrepreneurship is mediated by the context" (Fernandez-Serrano et al., 2019: 349) "This … leads us to question the usefulness of the concept of 'necessity entrepreneur', since it would appear that becoming an entrepreneur requires an act of volition, and is not generally the option of last resort" (Sarkar et al., 2018: 279).
Irreducibility and temporality	• Necessity tends to be co-present with other entrepreneurial motives • Certain motives defy simple classification within push/pull framework • Salience of necessity tends to ebb and flow over time	"The most important finding is that graduates were neither solely pushed nor pulled into entrepreneurship. The journey to graduate entrepreneurship is not a function of a single motivating factor. There is no over-riding push or pull factor that applied to any of the cases – all cases are characterised by a combination of the two" (Nabi et al., 2015: 500). "[E]conomic and enterprise development practitioners would be ill-advised to neglect the necessity-driven entrepreneurs who operate informally, since many end up as opportunity-driven persons in time" (Adom, 2014: 115). "Respondents not only commonly expressed multiple motivations but the majority also possessed what might be termed temporally fluid motivations, with many asserting that their motivations had shifted over time from more necessity-driven to opportunity-driven motives" (Williams & Williams, 2012: 678).
Problems of representation	• Much of what is known about NE is derived from narrow comparisons to OE, which is intrinsically (as well as instrumentally) superior • Essentialist ontologies obscure internal diversity in NE category	"[T]he predominant conceptual account of necessity entrepreneurship—grounded in the push–pull framework—…emphasizes a dichotomous view contrasting necessity entrepreneurs with opportunity entrepreneurs who are pulled into entrepreneurship by its attractiveness. In doing so, key distinctions among necessity entrepreneurs, the environments in which they operate, and the processes by which they engage in entrepreneurship are relegated to the background, away from scholars' attention. As a consequence, necessity entrepreneurs are often depicted homogeneously as low-skilled individuals creating small businesses (e.g., Poschke, 2013), leaving key variation that exists within necessity entrepreneurship underexplored and undertheorized" (Dencker et al., 2021: 61). "[T]his simplistic view of the dichotomy, which has gone unchallenged, has become a loop of assumptions about the process of entrepreneurship. It is explained only on in terms of motivation and business results related to economic factors. However, this assumption is false." … "We find that a group of necessity-driven entrepreneurs with high growth aspirations exists, and, simultaneously, we show that this group is heterogeneous" (Puente et al., 2019: 957 & 972).

Table 2: A summary of possibilities and prospects for the NE literature

Possibilities for NE literature	**Main features**	**Empirical aims**	**Possibilities and priorities for future work**
1. Epistemological rupture	Abandon NE as a conceptual lens	Break from the simplifying assumptions that have become embedded in NE research	N/a - field dramatically shrinks or disintegrates.
2. Conceptual stretching	Continue current patterns of usage	High-level comparative work	Research progresses 'as is', with ongoing friction regarding the conceptual utility of NE.
3. *De*conceptualizing NE	Prevailing conceptualizations of NE move upwards on "ladder of abstraction"	High-level comparative work	Broadening the frame of reference in comparative work.
4. Re-imagining the nature of NE category			
- Radial	Breaking the NE category into theoretically meaningful subsets to facilitate internal comparison	Revealing and accounting for internal diversity	- Re-framing NE's relationship to neighboring constructs. - Theorizing both motivation and circumstance - Theorizing NE as embedded agency. - Circumstances in which policy should encourage NE.
- Family-resemblance	Approaching NE as a holistic package of attributes which together engender prototypicality (particularly in cases where the availability of livelihood alternatives is presumably low, but is not easily observable)	Process theorising around archetypal cases	- (Re-)connecting NE with neighboring literatures.

FIGURES

Figure 1: Integrative overview of the NE literature

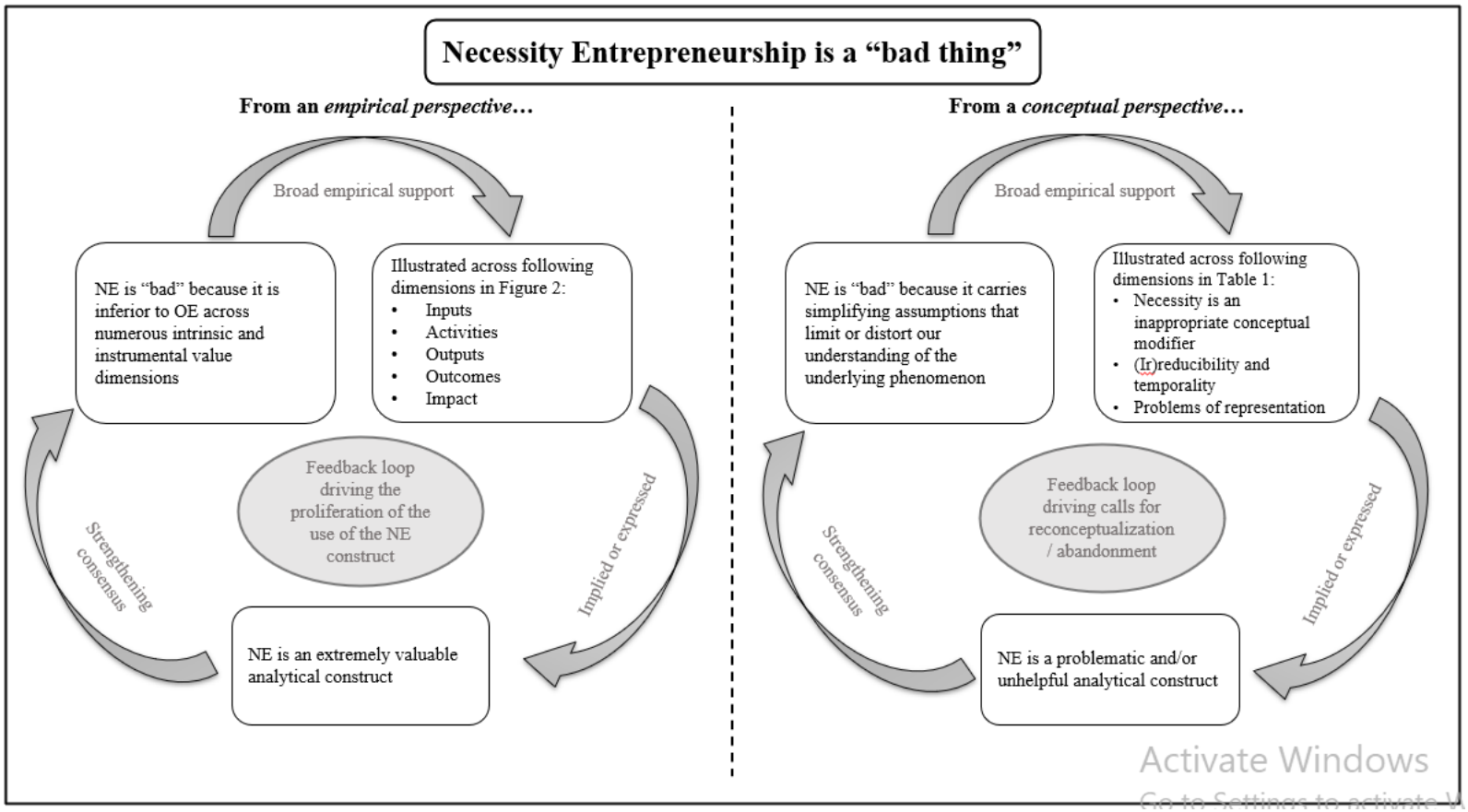
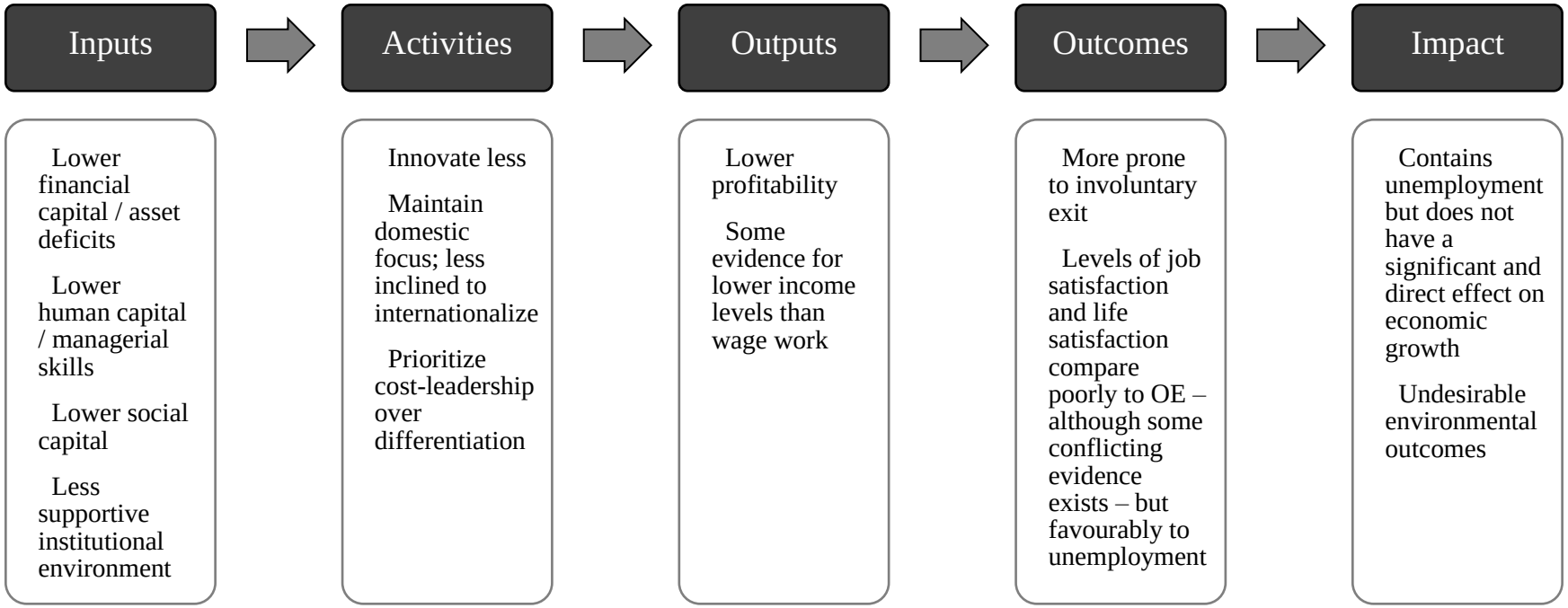


Figure 2: Valuing NE as an empirical phenomenon



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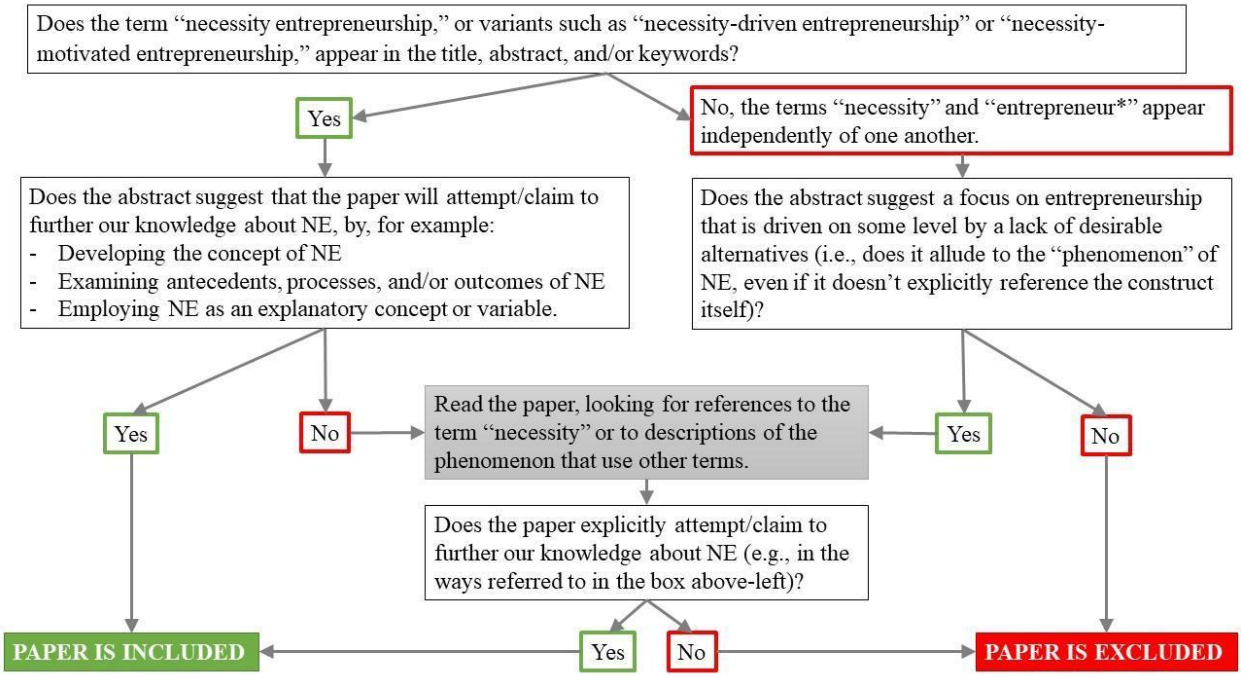
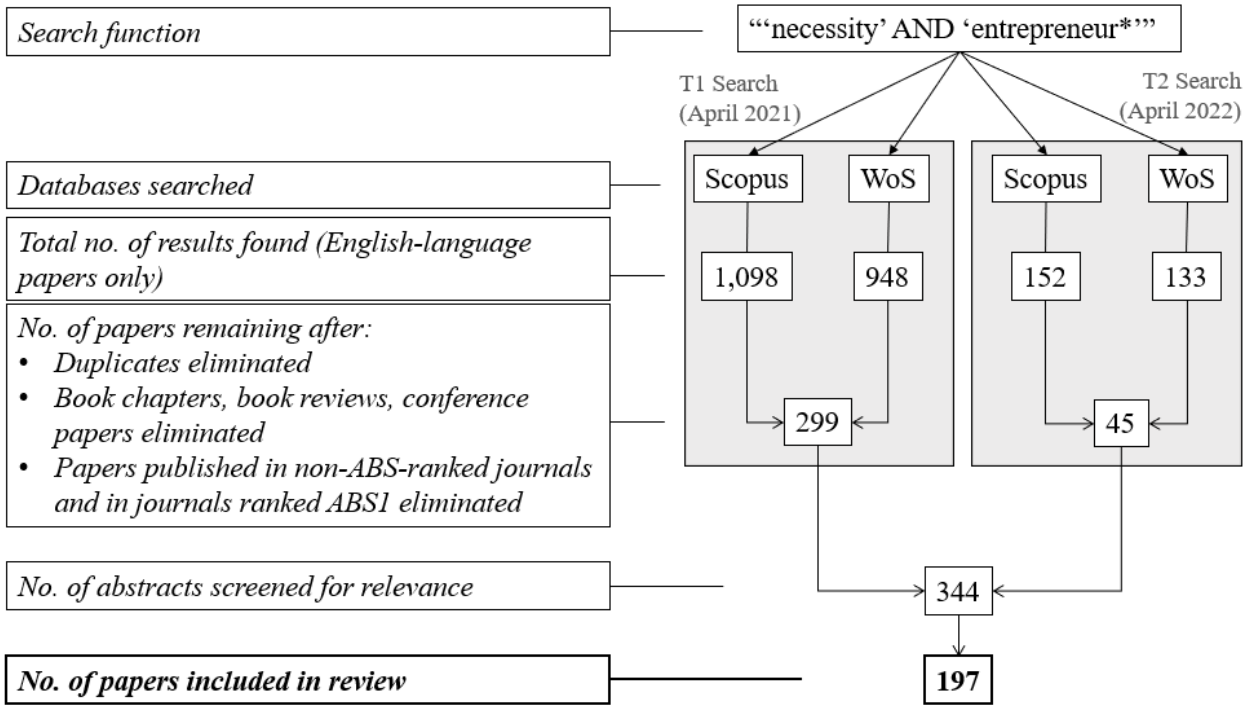
APPENDICES

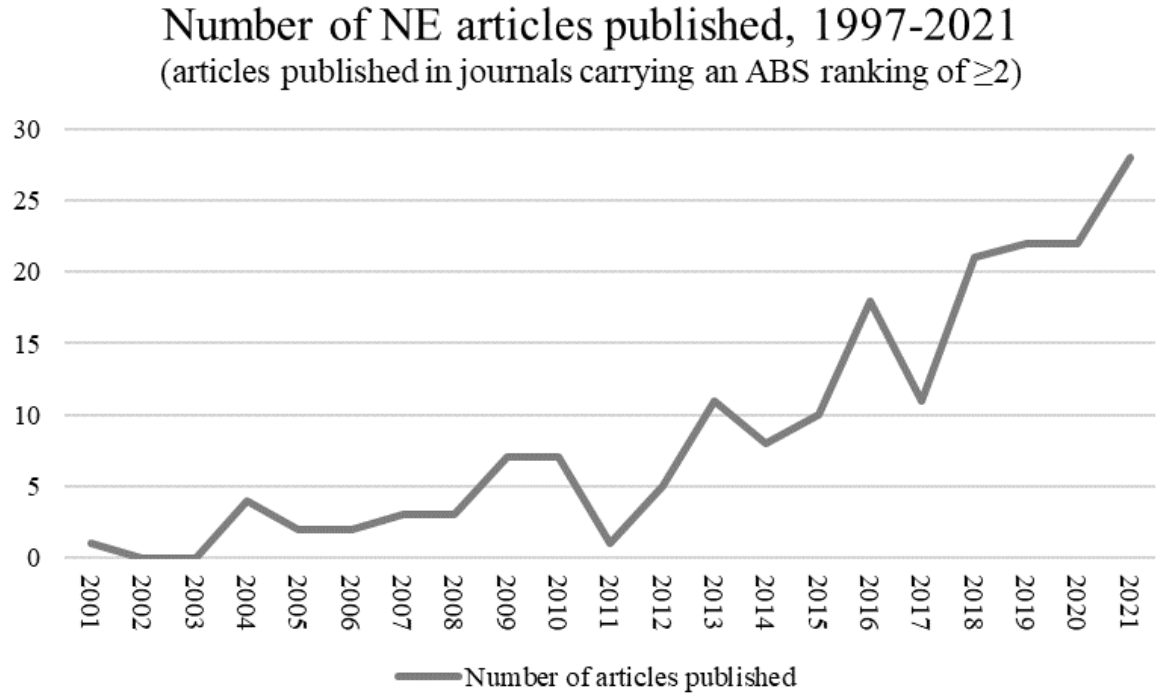
Appendix A: Decision matrix for the inclusion/exclusion of articles



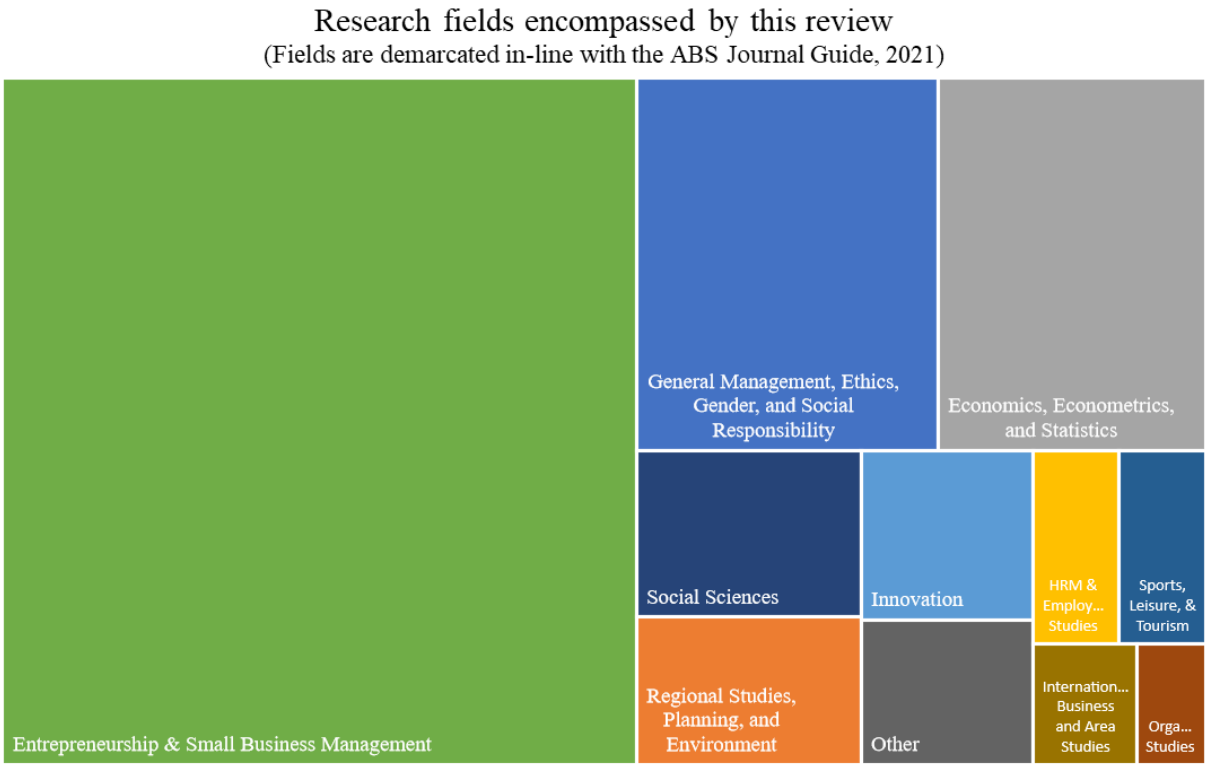
Appendix B: Overview of our search and screening process



Appendix C: The literature under review, graphed by year of publication



Appendix D: Research fields encompassed by this review



Appendix E: Coding master-framework

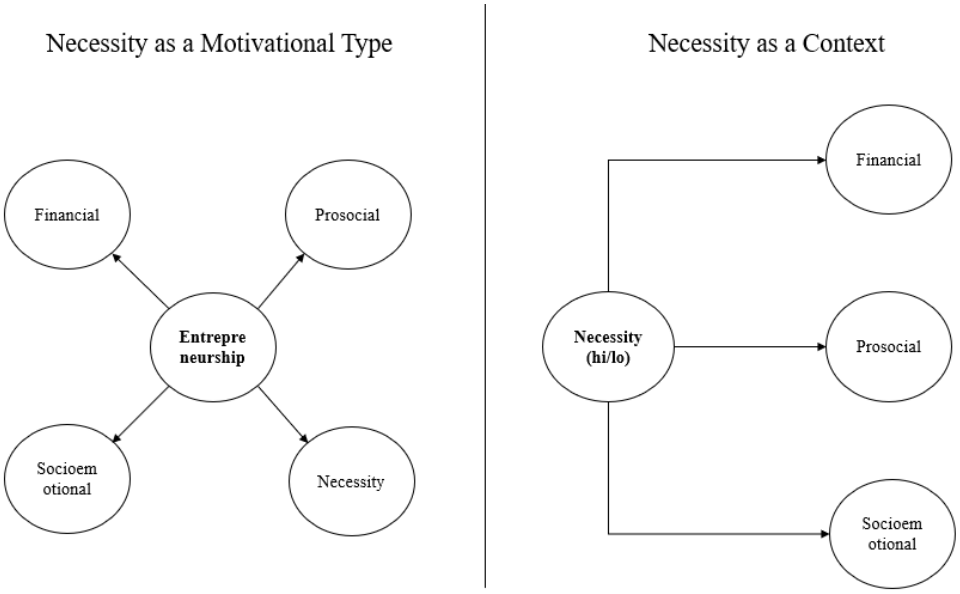
Code/subcode name	Definition
1a. Conceptualisation Problems	Problems, difficulties, inconsistencies in how NE is conceptualised.
Assumption of NE as 'static condition'	The problem that theoretical models of NE and OE generally do not consider that an NE might in future transition to an OE (or vice-versa).
Assumptions of internal homogeneity	NE is conceptualised in a way that does not adequately account for internal heterogeneity, i.e. differences in profile, circumstances, approaches, motivations, etc. among NEs, resulting in NEs being represented as overly similar to one another.
Blurred boundaries between NE-OE	Difficulties associated with treating NE and OE as distinct, bounded categories, because in some respects NEs behave like OEs (and/or vice-versa).
It's not really 'necessity' (other choices exist)	The term 'necessity' is a poor fit for the phenomenon, because the entrepreneurs that we speak about as NEs retain some level of choice/agency - either in terms of choosing between self-employment and other livelihood options, or in making strategic choices within entrepreneurship (e.g., which products to sell).
NE is poorly contextualised	Conceptualisation of NE tend to take poor account of various aspects of context (social, institutional, spatial, historical, etc.), leading to perspectives of NE that are overly homogenous.
1b. Attempt to Overcome Conceptualisation Problems	Paper identifies one or a number of conceptual issues surrounding NE, and explicitly outlines one or more possible approaches aimed at overcoming the problem(s).
Introducing a tertiary construct or category	A new variable is introduced to capture a third category, so that NE-OE is no longer a binary framework.
NE-OE as a continuum	The idea that NE-OE is better viewed as a continuum rather than as two (or even three or more) discrete categories.
Proposing a novel theoretical lens	Paper borrows or develops a novel theoretical lens aimed at advancing a more effective/constructive conceptualisation of NE.
1c. Defining NE	Aimed at identifying the main factors that underlie definitions of NE.
Implying some 'choice'	One dimension by which definitions might differ is in terms of agency - these definitions imply some level of agency or choice on the part of the NE.
Neighbouring term	A neighbouring term or construct is incorporated into the definition of NE (by way of comparison, analogy, frame of reference, etc.).
No alternatives at all	NEs are NEs simply because they have no meaningful livelihood alternatives.
Standout definitions	Use this code to capture any definitions that seem to deviate in some way from what is 'standard'.
1d. Notes on Methodology	Notable observations on the methodology of empirical NE research.

Operationalising the NE construct	Different ways of identifying/proxying/measuring NE.
Practical difficulties of researching marginalised populations	Challenges associated with securing research access to socioeconomically or geographically peripheral populations.
1e. Agency	The extent to which a NE (or other person) might realistically be able to pursue a range of choices in respect of his/her life and livelihood, versus having that range of choices limited by a lack of resources (financial, social, intellectual, physical, etc.) or opportunities.
NE conceptualised as absence of agency	NEs are seen as having no meaningful choices in respect of the livelihoods that they pursue (employment vs self-employment) and/or the type of opportunities that they pursue as entrepreneurs.
NEs retain agency	Although the range of livelihood options available to NEs might be limited by different facets of their circumstances, there are some alternatives to self-employment and/or some scope for them to choose between different entrepreneurial opportunities (e.g., different products/markets).
1f. Motivation	To capture instances where 'motivation' (or motivation theory) is used as a basis for conceptualising NE
Motivated to survive or escape extreme poverty	The 'motivation' in question is one of survival or escape from extreme poverty.
Motivation as a conceptual lens	Motivation is used in different ways and with different degrees of prominence in NE literature. Here, we're looking to gain a sense of (i) its prevalence in the literature and (ii) the different ways in which it is used as a conceptual lens for NE.
'Necessity' co-existing with or superseded by other motives	To capture instances where NE isn't driven purely by a survival motive, but where other motives (e.g., long term social mobility, social motives) are also at play.
1g. In support of NE-OE dichotomy	Empirical findings or conceptual arguments which suggest that the conceptual delineation of NE and OE is (to a meaningful extent) valid - e.g., findings that suggest that NEs and OEs perform or behave differently.
Explicit	The authors allude explicitly to how their findings support the NE-OE distinction.
Implicit (supported by findings, but not explicitly discussed)	Empirical findings seem to support a NE-OE distinction, but this is not discussed beyond a sentence or two in the results section.
1h. Memorable Quotes	Excerpts from articles that succinctly capture a particular point of view, or which vividly illustrate some aspect of NE.
2a. NEs as 'Entrepreneurs'	Aiming to capture the extent to which necessity entrepreneurs(hip) is/are seen to be driven by the same factors, and follows a similar process, to 'normal' entrepreneurship. This might come through in a paper through direct comparisons to OE, or simply through descriptions of NE in its own terms (in which case we will rely on our own knowledge of the broader entrepreneurship literature to gauge this).

Evaluating or Exploiting Opportunities	Discussions on the types of opportunities that NEs exploit, or the process of opportunity discovery/evaluation/exploitation.
Consciously or in a complex way	Rather than simply being 'forced' into a particular line of business, NEs reflect on the extent to which it aligns with their personal interests or aims, or to the market environment.
Limited to low-quality opportunities	NEs are limited by resource constraints (or constraints of other kinds) to what they believe to be inferior forms of business or strategies.
Growth Aspirations	Relating to NEs' growth aspirations, either as compared to OEs or as a standalone analysis.
High	
Low	
Innovativeness and creativity	Relating to levels of innovativeness or creativity of NEs, either as compared to OEs or as a standalone analysis.
High	
Low	
Risk Appetite	Relating to NEs' risk appetite, either as compared to OEs or as a standalone analysis.
High	
Low	
2b. Micro Antecedents	Factors pertaining to the individual (as a level of analysis) that play some part in them engaging in NE.
2c. Macro Antecedents	Factors pertaining to all levels of analysis above the individual/firm (this could include nations, regions, cities, or communities) that drive people to become NEs.
2d. Micro Outcomes	Outcomes of NE as they relate to the NE/firm his/her/itself. This might include financial/performance outcomes, changes to life satisfaction, etc.
Relative to employment	Direct comparisons between outcomes from NE and outcomes from employment (including casual labour).
Inferior	For use when the outcomes of NE as seen to be inferior to the outcomes of employment.
Superior or similar	For use when the outcomes of NE as seen to be superior to (or indistinguishable from) the outcomes of employment.
Relative to OE	Direct comparisons between the outcomes of NE and OE.
Inferior	For use when the outcomes of NE as seen to be inferior to the outcomes of OE.
Superior or similar	For use when the outcomes of NE as seen to be superior to (or indistinguishable from) the outcomes of OE.

2e. Macro Outcomes	Outcomes of NE that pertain to levels of analysis above the individual/firm (e.g., nation, region, community, etc.)
2f. 'Who' is a NE	Aimed at cataloguing individual (or network-level) attributes that appear to predispose certain people to NE (as opposed to OE or employment).
Age	
Ethnic background	
Family or other network aspects	
Gender	
2g. Strategy or process in NE	Distinct from the antecedents/outcomes of NE, this is aimed to capture various facets of the process of NE, e.g., how they mobilise resources, choose between opportunities, or formulate strategy.
3a. Embeddedness	Concerned with the psychosocial ties that connect a person to a collective or a place.
Identity	Links between NE and a person's sense of 'who I am' or a group's sense of 'who we are'. This can encompass social identity, collective identity, role identity, and broader notions of belonging.
Networks	Social, familial, or professional ties that have some kind of bearing on NE.
Norms or values	Broadly aimed at capturing the 'cultural context' of NE.
Religion	Relating to a person's religious beliefs, or the religious institutions in the society in which they operate.
3b. Policy for NE	Discussions relating to the support of NEs (broadly understood) by governments, NGOs, and others.
Failing	Indications that this policy is not performing as effectively as hoped.
Need for 'tailored' policy	Indications that NEs require different polices/types of policies to OEs in order to boost their survival/growth prospects.
Succeeding	Indications that policies are effectively supporting NEs.
3c. NEs role in the Global Economy	Discussions on the function(s) performed by NEs in the global economy, or, more broadly speaking, their general place in that system.
3d. Political and Economic Power	Discussions on the political and/or economic power that NEs hold (e.g., their power, or lack thereof, to shape government policy to align to their needs/interests).
High	
Low	

Appendix F: Necessity as a category of entrepreneurial motive versus necessity as a context for entrepreneurial motive(s)



Appendix G: Illustrating the demarcation between the NE literature and the literature on entrepreneurship in contexts of extreme poverty

The graphic below was created using the open-access, bibliometric analysis programme, VOSViewer. Each of the boxes in the graphic represents an article; more specifically, boxes labelled "ne" represent articles in our review, while those labelled "pov" represent articles in Sutter et al.'s (2019) review on entrepreneurship in contexts of extreme poverty (as noted in the text, we added articles, following as closely as possible the methodology set out in the original paper, to Sutter et al.'s [2019] list to ensure that it provided an up-to-date representation of that literature). The proximity of boxes (articles) to each other is determined by the level of similarity across their reference lists, which we treat as a proxy for the level of congruence in underlying ideas. From this graphic, it is clear that the NE and poverty literatures – as represented by our review and Sutter et al. 's (2019) review – are quite easily distinguishable (we highlight this distinction by superimposing the dark and light shading over the graphic).

Philip O'Donnell (philip.odonnell2@mail.dcu.ie) is a Postdoctoral Research Fellow at Dublin City University Business School. At the time of conducting this research, he was engaged in a two-year programme of study focusing on entrepreneurship in contexts of poverty and marginalization, which was funded by the AXA Research Fund within the scope of its *Towards Inclusive and Sustainable Economic Growth* research initiative.

Margot Leger (m.j.m.leger@uu.nl) is a PhD Candidate in Entrepreneurship at Utrecht University School of Economics. Her research revolves around entrepreneurship in contexts of poverty, as well as informal economy entrepreneurship, social entrepreneurship and entrepreneurial support intermediaries.

Colm O'Gorman (colm.ogorman@dcu.ie) is Professor of Entrepreneurship at Dublin City University Business School. His research focuses on entrepreneurship, innovation, and growth in new firms and in small and medium sized enterprises.

Eric Clinton (eric.clinton@dcu.ie) is an Associate Professor of Entrepreneurship at Dublin City University Business School and Director of the DCU National Centre for Family Business. He is also a Visiting Professor at Babson College, USA and the University of Valencia, Spain. His research interests are primarily concerned with strategic entrepreneurial practices in multi-generational family firms.