

Understanding pandemic entrepreneurship as a unique form of crisis entrepreneurship

Unique
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Abstract

Purpose – There is a large literature about crisis entrepreneurship, spanning from necessity, natural disaster and long-term conflict entrepreneurship. This paper situates pandemic entrepreneurship as a unique form of crisis entrepreneurship.

Design/methodology/approach – The authors utilize the Kirznerian and Schumpeterian theories of entrepreneurship to understand pandemic entrepreneurship. Using evidence from the US COVID-19 pandemic, the authors argue that pandemics impact both the “identification” and “action” moments of entrepreneurship.

Findings – The Kirznerian identification moment becomes much more uncertain for entrepreneurs because of fluctuating conditions, such as public health conditions, new potential variants of the virus causing the pandemic, shifting government mandates and rules and so forth. The Schumpeterian action moment becomes more challenging because of the necessity of physical distancing and because, generally, all crises raise the cost of entrepreneurial action. That said, the authors still document considerable entrepreneurship during pandemics as entrepreneurs adapt to the increased uncertainty and costs by rely upon local and customary knowledge.

Research limitations/implications – This research finds that entrepreneurs, depending upon the crisis, face differing constraints. Specifically in times of pandemic, entrepreneurs face difficulty recognizing opportunities because of shifting conditions and acting upon opportunities because of financial and political constraints. This research thus implies that there are large opportunities for alleviation of such constraints if there were to be future variants or pandemics.

Practical implications – Practically speaking, this research affects how people study entrepreneurship. By recognizing the differing constraints that pandemic entrepreneurs face, the authors can better understand the last several years, and can also prepare better policy wise for future pandemics or further variants of COVID-19.

Social implications – Socially, entrepreneurship can be a large factor in recovery from disasters and crises. By recognizing and perhaps alleviating constraints that pandemic entrepreneurs face, future crises could have better responses and recoveries.

Originality/value – Although several studies have examined entrepreneurship during the COVID-19 pandemic, the extant literature on pandemic entrepreneurship remains relatively underdeveloped and has not yet focused on what distinguishes pandemic entrepreneurship from other forms of crisis entrepreneurship. The authors highlight what pandemic entrepreneurship has in common with other forms of crisis entrepreneurship and pinpoint the various ways that is distinct.

Keywords COVID-19, Disaster recovery, Kirzner, Entrepreneurship, Crisis entrepreneurship, Pandemics, Schumpeter

Paper type Research paper

1. Introduction

As the COVID-19 virus began spreading around the globe in late 2019 and early 2020, not only did many become ill and die, but individuals were faced with difficult decisions of canceling gatherings, closing places of business, and distancing from loved ones. Indeed, the COVID-19 pandemic brought with it many difficulties and hardships. However, entrepreneurship has proven to be an important force as communities faced and



responded to the global pandemic. As occurs during and after most crises, entrepreneurship became a key driver of community response and recovery during the pandemic. Specifically, pandemic entrepreneurs (a) developed the goods that helped individuals survive and combat the pandemic (e.g. the personal protective equipment for preventing the spread of the virus) and (b) supplied the services needed so that people can stay productive and connected during the pandemic (e.g. offering the technology for telework) (Storr *et al.*, 2022).

There has been some discussion of entrepreneurship during the COVID-19 pandemic and the effects of COVID-19 on entrepreneurship [1]. Liñán and Jaén (2020), for instance, discuss that resilience is the key force that did and will keep entrepreneurs from stopping work during the pandemic. They argue that “necessity” entrepreneurship (discussed at length in Section 2) will be more common than “opportunity” entrepreneurship, largely because dire situations stemming from the pandemic will necessitate certain entrepreneurial actions. Similarly, Meyer *et al.* (2021) detail how entrepreneurs during the pandemic can utilize their ability to identify (in a Kirznerian sense) and act on (in a Schumpeterian sense) entrepreneurial opportunities. Specifically, they discuss how entrepreneurs’ resilience and innovations can facilitate new patterns of work, learning, and leisure activities in post-COVID-19 societies. Likewise, Stephan *et al.* (2021) explore what happened to entrepreneurs in England following the shock from COVID-19. They found that over half of the entrepreneurs surveyed agreed that there were in fact new business opportunities available during the pandemic. However, entrepreneurs also felt much more stress and faced a substantive drop in life satisfaction. Related to this negative finding, Torrès *et al.* (2022) found that entrepreneurs in France were at higher risk of burnout and bankruptcy during the pandemic. Also, Haltiwanger (2022) finds that small, entrepreneurial firms suffered disproportionately because of the pandemic (see also Chaturvedi and Karri, 2021 for a discussion of the effects of the pandemic on small businesses).

Importantly, Ratten and Jones (2021) find that entrepreneurial education during the pandemic will necessarily be affected, and that future teaching methods and policies should incorporate further teaching on the COVID-19 pandemic. In the same vein, Ratten (2021) argues that there is a link between entrepreneurship and public policy, specifically around the pandemic. She uses the crisis management literature to draw comparisons between the two scenarios and to emphasize how public policy can help inform entrepreneurship. Also, Ratten *et al.* (2021) study the sports industry and find that, due to the existence of entrepreneurial ecosystems within the sports industry, this industry was able to rapidly innovate when confronted with a pandemic. Through interviews with sports managers, Ratten *et al.* discover that sports entrepreneurs leveraged their unique contexts to enable crisis management, collaboration and value co-creation.

There have also been a few studies that have looked specifically at how pandemic entrepreneurs help communities to survive and combat the COVID-19 pandemic. Bacq and Lumpkin (2020), for instance, discuss how entrepreneurship aimed at addressing societal ills was very active and indeed necessary during the pandemic. Relatedly, Ratten (2022) finds that the link between social entrepreneurship and COVID-19 during the pandemic was strong, and she argues that there was a strong social value of entrepreneurial co-creation during the pandemic. Storr *et al.* (2022) specifically examine entrepreneurship during pandemics and compare it with natural disaster entrepreneurship (discussed further in Section 2). They also examine how social and legal institutions can, in some instances, hinder entrepreneurship while helping it in other instances.

Although several studies have examined entrepreneurship during the COVID-19 pandemic, the extant literature on pandemic entrepreneurship remains relatively underdeveloped and has not yet focused on what distinguishes pandemic entrepreneurship from other forms of crisis entrepreneurship. In order to understand the key roles that pandemic entrepreneurs perform it is, arguably, useful to highlight what

pandemic entrepreneurship has in common with other forms of crisis entrepreneurship and to pinpoint the various ways that is distinct.

Situating pandemic entrepreneurship within the crisis entrepreneurship literature is important for several reasons. First, while the crisis entrepreneurship literature is quite large, the literature on pandemic entrepreneurship is relatively thin. Additionally, the literature that does exist on entrepreneurship during the pandemic primarily focuses on how the pandemic impacted entrepreneurs not on how entrepreneurs helped communities survive and combat the pandemic. Understanding pandemic entrepreneurship as a distinct form of crisis entrepreneurship could fill this important gap in the crisis entrepreneurship literature. Second, situating pandemic entrepreneurship within the crisis entrepreneurship literature could improve our understanding of pandemic entrepreneurship. Specifically, it allows us to leverage the extensive crisis entrepreneurship literature as we highlight its key features. Third, properly situating pandemic entrepreneurship within the crisis entrepreneurship literature can help inform to policymakers. As [Storr et al. \(2022\)](#) discuss, entrepreneurship during pandemics can be encouraged or impeded by government actions. Relatedly, [Ratten \(2021b\)](#) argues that pandemic policies can impact entrepreneurship and the importance of entrepreneurship during a pandemic should be relevant for policy makers. This is perhaps particularly important to both scholars and policymakers since we are likely to be confronted may be confronted with yet another global pandemic.

In this article, we argue that pandemic entrepreneurship is a unique form of crisis entrepreneurship. In the next section, we discuss the characteristics of different forms of crisis entrepreneurship and the epistemic and other challenges that crisis entrepreneurs must overcome. Specifically, we look at necessity entrepreneurship, disaster entrepreneurship and long-term conflict entrepreneurship. We, then, explore pandemic entrepreneurship and how it compares with the other forms of crisis entrepreneurship. [Section 3](#) offers concluding remarks.

2. Situating pandemic entrepreneurship in the landscape of the crisis entrepreneurship literature

Kirzner and Schumpeter, two of the most renowned scholars on entrepreneurship, highlight different aspects of entrepreneurship and different moments of entrepreneurial action. All successful entrepreneurship (including crisis entrepreneurship) involves both the Kirznerian “opportunity identification” and Schumpeterian “opportunity exploitation.”

For Kirzner, the entrepreneur is crucial in “driving the process of equilibration” ([Kirzner, 2009](#), p. 147). His emphasis was on the cognitive aspects of entrepreneurial efforts, such as the entrepreneur’s alertness to profit opportunities. Kirzner’s entrepreneur recognizes or notices hitherto unrecognized profit opportunities, meaning opportunities to buy low and sell high. These arbitrage opportunities are in a sense out there waiting to be seen by keen, alert entrepreneurs – like dollar bills left on the sidewalk. Indeed, alertness is at the heart of Kirzner’s entrepreneurial theory. For Kirzner, then, entrepreneurship is a form of error identification. It is about noticing when a good is mistakenly priced too low, that is, consumers in a nearby market are willing to pay more for the good. And, noticing when a good is mistakenly priced too high, that is, sellers in a nearby market are willing to sell the good for a lower price. A key reason why pandemic entrepreneurs were able to perform such a vital role in pandemic survival was because pharmaceutical companies identified opportunities to develop and supply drugs to prevent or treat COVID-19 or its symptoms, manufacturers noticed opportunities to leverage their existing machinery to produce goods more useful during the pandemic (like PPE and hand sanitizer), and technology firms figured out how their platforms might be adapted to facilitate telework.

While Kirzner’s entrepreneur focuses on opportunity identification, Schumpeter’s focuses on opportunity exploitation. Once a profit opportunity has been identified, Schumpeter’s

entrepreneur is “defined by the carrying out of new combinations” (Schumpeter, 2012 [1934], p. 68). This involves introducing a new good or a new method of production, entering a new market, finding a new source of supply for inputs, or can even involve bringing about new industries. The Schumpeterian entrepreneur designs and develops products, opens factories and stores, locates and purchases inputs, hires employees and secures financing. If the Kirznerian entrepreneur is alert, noticing what is sitting out there in front of him, the Schumpeterian entrepreneur is bold and creative, making the world different through their action. If the Kirznerian entrepreneur is a seer, the Schumpeterian entrepreneur is a doer. Those pandemic entrepreneurs who moved from noticing opportunities to actually exploiting them were the ones who ultimately drove pandemic survival (e.g. Pfizer and Moderna in producing a vaccine).

This understanding of multiple “stages” of entrepreneurship aligns closely with the “stage models of entrepreneurship” (see John and Storr, 2018; Baron, 2006; Bhave, 1994; Corbett, 2005; Fayolle, 2007; Jones and Coviello, 2005; Moroz and Hindle, 2011). As John and Storr (2018, p. 583) discuss “opportunity identification and opportunity exploitation appear to be two essential moments of the entrepreneurial process.”

Kirznerian and Schumpeterian entrepreneurship in “regular” times, that is, during times where a crisis is not occurring, must certainly deal with risk and cope with uncertainty. Indeed, in regular times, entrepreneurs could mistakenly believe that an unprofitable endeavor is instead a profit opportunity. Similarly, the conditions that made a venture seem likely to be profitable could change unexpectedly. Additionally, the technology involved in various aspects of the production process can breakdown in ways that are too costly to repair, the marketing efforts could fail to gain traction with potential customers, and competitors could come along with a better product at a lower cost. Also, failure is an ever-present possibility of any human endeavor. That entrepreneurial success necessarily requires coordination with others as well as the cooperation of others only increases the possibility of failure. Moreover, in regular times, entrepreneurs could face unanticipated policy or regulatory roadblocks.

Understanding entrepreneurial action, thus, requires paying attention to the two moments of entrepreneurship, being attuned to the risks and uncertainty that can challenge entrepreneurial efforts in both these moments, and focusing on the settings in which entrepreneurs are operating, the instruments they have at their disposal and the goals they are pursuing. Additionally, an entrepreneur’s likelihood of success will be impacted by (a) whether the activities are occurring over an extended period, (b) whether entrepreneurs are confronted with unusually high levels of uncertainty (i.e. the difference between sailing in chartered versus unchartered territory), (c) whether entrepreneurs must deal with deals with system wide challenges (i.e. the difference between a circuit overload in the factory and a city-wide power outage), and (d) whether entrepreneurs must overcome extreme financial obstacles. Moreover, there are several characteristics that entrepreneurs can exhibit, including whether they are (e) modeling resilience, (f) being place-dependent, (g) relying on local and customary knowledge and (h) helping to bring about systematic change like recovery/development. Indeed, the roles that entrepreneurs play and the settings (spatial, temporal and institutional) that entrepreneurs occupy are also key aspects of entrepreneurship and are likely to affect entrepreneurial success. Arguably, one way to understand the similarities and differences between different types of (crisis and non-crisis) entrepreneurship, then, would be to explore the extent to which these particular factors are salient.

Undoubtedly, all forms of crisis entrepreneurship, including pandemic entrepreneurship, have much in come with regular/normal/mundane/non-crisis entrepreneurship. That is, all entrepreneurs including crisis entrepreneurs are identifying opportunities and attempting to exploit them. Moreover, all entrepreneurs including crisis entrepreneurs are impacted by

their spatial, temporal and institutional environments. What distinguishes crisis entrepreneurship from non-crisis entrepreneurship is that it is entrepreneurship in response to and with the aim of alleviating some personal or community-wide crisis. Necessity entrepreneurship, for instance, is entrepreneurship undertaken by the extremely poor in hopes of alleviating deprivation. Similarly, post-disaster entrepreneurship is entrepreneurial action in the wake of a natural hazard like a flood, earthquake, or Hurricane, with the (direct or indirect) aim of promoting community rebound. Likewise, long-term conflict entrepreneurship is entrepreneurship that occurs where there is an ongoing military conflict usually with the aim of providing goods and services that community members need to endure. And, pandemic entrepreneurship takes place during a pandemic and aims at pandemic survival and even recovery.

Different types of crises (like a pandemic or a disaster) change the conditions confronting entrepreneurs and, in so doing, change the nature of the cognitive space that they must navigate, the constraints entrepreneurs face, and the specific (crisis-related) challenges they must overcome. Additionally, different types of crises (like a pandemic or a post-disaster) are likely to affect the Kirznerian “identification” moment and the Schumpeterian “action” moment in different ways. This is certainly true when we consider necessity, post-disaster, and long-term conflict entrepreneurship. Below we discuss each of these forms of crisis entrepreneurship and then compare and contrast them with pandemic entrepreneurship (along a through h above). In highlighting the relevant spatial, temporal and institutional settings for each type and primary roles each type of entrepreneur performs, we do not wish to suggest that the settings and roles we flag for a particular type of entrepreneurship might not be relevant (in some degree) for others where it is not flagged. Instead, we are attempting to isolate the most important features for the four types of crisis entrepreneurship we explore.

Admittedly, there is a sense in which any exercise along these lines is necessarily going to appear ad hoc and the borders drawn around the different forms of crisis entrepreneurship, and even between crisis and non-crisis entrepreneurship, are likely to appear to be arbitrary. So, of course, there will be instances where say necessity entrepreneurs are exhibiting characteristics that we would typically associate with some other form of crisis entrepreneurship. Similarly, there will be instances where say post-disaster entrepreneurs are not exhibiting all characteristics that we typically associate with them. Our aim here, however, is not to develop an impregnable classificatory system but to explore how the extant literature might be leveraged to improve our understanding of pandemic entrepreneurship, which is less well studied and less well understood.

2.1 Necessity entrepreneurs must overcome extreme financial obstacles, model resiliency, and rely on local and customary knowledge

Necessity entrepreneurship, a term coined by Global Entrepreneurship Monitor in 2001 (Brewer, 2014), is normally undertaken by poorer individuals or those in very desperate situations. Often referred to as “push” entrepreneurs because they face no other good alternatives and are consequently “pushed” to start a new venture or face (see Amit and Muller, 1995; Storey, 1991; Ritsilä and Tervo, 2002), [2] these types of entrepreneurs are driven by new opportunities but instead are primarily concerned with sustaining life. These entrepreneurs start their enterprises because they cannot find adequate or consistent paid employment (Amit and Muller, 1995). As Brewer and Gibson (2014) detail, “they range from street sellers to educated hopefuls with little access to formal employment, the one thing that unites them is the need to survive.”

Dencker *et al.* (2021) propose that necessity entrepreneurship can be understood as an individual attempting to fulfill his basic physiological and safety needs, part of the “basic” needs in Maslow’s famous hierarchy of needs. A plurality of existing entrepreneurs around

the globe practice necessity entrepreneurship. The Global Entrepreneurship Monitor's survey, with collection from 46 countries, found that in 2000, 63 million people, or 43% of those analyzed, were participating in some form of necessity entrepreneurship (Reynolds *et al.*, 2001). Brewer and Gibson (2014), writing over a decade later, find this to be closer to one billion people.

Necessity entrepreneurship contrasts with "opportunity" entrepreneurs who have more stable situations and undertake entrepreneurial ventures not out of necessity but because they have identified an opportunity and are driven to out of their own desire (Fairlie and Fossen, 2019). Moreover, necessity entrepreneurs tend to be in the service sector because the service sector tends to more immediately accessible and have a lower cost of entrance (Reynolds *et al.*, 2001) [3]. Relatedly, Munoz (2010) discusses how circumstances like low educational levels and factors in the socioeconomic environment like unemployment, low income and social marginalization, tend to create necessity entrepreneurs. And, Nikiforou *et al.* (2019) find that people tend to take on necessity entrepreneurship the longer they have been unemployed, as the cost of unemployment and other related mental costs rise.

Necessity entrepreneurs exist in difficult institutional contexts, and typically face intense financial stress and often operate in highly uncertain environments. For instance, Fuentelsaz *et al.* (2015) find that necessity entrepreneurs tend to operate in environments with unstable property rights, little business, fiscal and labor freedom, and low financial and educational capital. Angulo-Guerrero *et al.* (2017), similarly, show that necessity entrepreneurs typically operate in less economically free environments. Likewise, Bergmann and Stenberg (2007) find that increasing unemployment in Germany between 2001–2003/4 led to increasing amounts of necessity entrepreneurship. That said, it should be noted that necessity entrepreneurship is debated within the literature, as some find it has negative effect on growth (see Tessier-Dargent and Fayolle, 2022 for a discussion), and others find no effect (Acs and Varga, 2005) [4].

Necessity entrepreneurs are also quite resilient, as they face difficult circumstances and yet persist. As Fairlie and Fossen (2019) note, necessity entrepreneurs are often acting counter-cyclically, meaning that necessity entrepreneurs are launching their ventures as the economy is shrinking (i.e. economic growth is negative) because of a lack of better employment prospects. The financial stress that is driving a necessity entrepreneur to act need not be the result of a system wide issue like a recession, but instead can be related to a local or individual issue. For instance, they may be reacting to a negative life event like the loss of a job, an accident, or an adverse health incident.

These entrepreneurs often rely upon local and customary knowledge. Thus, they must also understand the local entrepreneurial climate, and whether it is friendly or unfriendly to new startups, including the scale and scope of government/business corruption (Reynolds *et al.*, 2001, Audretsch *et al.*, 2022). For instance, high levels of corruption may require paying bribes to local officials to operate in certain areas or sectors. Necessity entrepreneurs must, thus, understand what sectors in their area are likely to lead to higher payoffs, face lower risks and face lower levels of corruption. Without this local and customary knowledge, their entrepreneurial endeavors are unlikely to be successful [5]. Indeed, Tessier-Dargent and Fayolle (2022) find that the social dimension of necessity entrepreneurship is extremely important, as necessity entrepreneurs gain psychological, human and social capital when working within the sphere of necessity entrepreneurship. Thus, not only is having such capital beneficial *before* entrepreneurship begins, but once one undertakes necessity entrepreneurship, one gains even more social capital that they can leverage to benefit their endeavors.

In terms of Kirznerian and Schumpeterian entrepreneurial "moments", the Schumpeterian moment seems especially difficult in the necessity entrepreneurship context, largely because of the challenges associated with starting and running a business with limited resources. That is, entrepreneurs facing extreme poverty and high levels of uncertainty on a long-term basis can still likely identify (in a Kirznerian sense) opportunities to improve their

circumstances through various ventures. Specifically, necessity entrepreneurs, especially if facing challenging conditions over a sustained period, can recognize the needs of their communities and can recognize that types of goods and services may fill those needs [6]. However, acting upon those needs (in a Schumpeterian sense) becomes much more difficult than it would be in “regular” times since necessity entrepreneurs face significant financial factors barring them from such action.

2.2 Post-disaster entrepreneurs are confronted with high uncertainty, model resiliency, bring about recovery/development are place-dependent, and rely on local and customary knowledge

Another form of crisis entrepreneurship is that of post-disaster entrepreneurship (see Chamlee-Wright, 2013; Chamlee-Wright and Storr, 2010; Storr *et al.*, 2017; Storr *et al.*, 2015). This type of crisis entrepreneurship occurs during and/or after a natural hazzard, such as a Hurricane, earthquake, or a tsunami. Brück *et al.* (2011) find that extreme events like natural disasters robustly and positively affect entrepreneurial activity. These entrepreneurs are often pre-disaster entrepreneurs who reestablish their pre-disaster operations or take on new roles during or after the disaster. Linnenluecke and McKnight (2017), similarly, argue that in addition to other actions taken during disaster, entrepreneurial firms often scale their preexisting enterprise, or alter the scope of their enterprise, to continue carrying on during and after a disaster. There is certainly some overlap between necessity and post-disaster entrepreneurs, since post-disaster entrepreneurs are also sometimes “pushed” into situations.

These entrepreneurs operate in a context of profound uncertainty. Beyond the uncertainty that necessarily confronts all entrepreneurs in a non-deterministic world, post-disaster entrepreneurs must navigate a world where some of the signposts that they might have relied on to decide on their courses of action have been damaged or destroyed. For instance, disasters can displace the customer bases these entrepreneurs once served and necessarily changes the priorities of the customers who remain (Chamlee-Wright and Storr, 2009). Disasters can also complicate finding employees and accessing supplies. Moreover, the post-disaster policy environment is often uncertain or unclear as policy makers often change the rules around enterprise in response to the disaster, introducing new regulations and suspending old ones. Additionally, bureaucracies may fail to meet the needs of disaster victims impacting the goods and services that they desire as well as their ability to supply or purchase needed goods and services (Sobel and Leeson, 2006). Financial difficulties certainly face some entrepreneurs impacted by the disaster, and certainly impacts some of their customers, but disaster related financial hardship is not necessarily system wide. Many entrepreneurs affected by the disaster will have insurance and access to savings that will allow them to rebuild and re-open their businesses. Others, however, will not have the financial resources to start or restart their ventures. An additional component of post-disaster entrepreneurship to consider is that disasters usually only affect relatively contained geographic areas, not typically an entire country and never the entire world.

Post-disaster entrepreneurs are often motivated by a connection to their communities, or what is sometimes referred to as “high place attachment” (see Kibler *et al.*, 2015; Lewicka, 2005; Hallak *et al.*, 2013). Reed and Edmilson (2020), for instance, discuss how bricolage, and community bricolage in particular, [7] are important to post-disaster entrepreneurs. Communities and their unique situational context can often leverage capital, whether it be physical, social, or otherwise, in specific ways known only by those in the community. Relatedly, Dinger *et al.* (2012) discuss the importance of community social identity in disaster recovery. These embedded entrepreneurs with deep ties to their community frequently have both social as well as economic motivations (Grube and Storr, 2018). While typically continuing to pursue their economic goals, they also want to see their communities rebuild and recover from a disaster. These social goals are often in addition to, but are sometimes

instead of, making a profit. Indeed, in such settings, profits may be secondary motives as recovery is necessary to spur the community into returning and rebuilding. Without their returning and rebuilding, these entrepreneurs are often acutely aware that their communities might cease to exist.

Importantly, these embedded post-disaster entrepreneurs also likely to possess the requisite knowledge to assess how they might contribute to community rebound, and especially how they might help to provide needed goods and services. They are also likely to have relationships within and external to the community that they can leverage as they navigate the extreme uncertainty that characterizes the post-disaster context. Indeed, much of the research on post-disaster entrepreneurship has discussed the importance of local and cultural knowledge of a given community. For instance, [Salvato et al. \(2020\)](#) find that family firms tend to survive and even thrive in disaster scenarios more so than non-family firms, largely because cohesion and emotional capital are already strong pre-disaster. Similarly, [Aldrich \(2018\)](#) stresses the importance of social capital for post-disaster entrepreneurs. In addition to addressing the importance of social capital, [Johannisson and Olaison \(2007\)](#) also discuss the local knowledge involved in such processes.

Post-disaster entrepreneurs also model resilience (see [Doern et al., 2019](#); [McNaughton and Gray, 2017](#)). As [Monllor and Murphy \(2017\)](#) detail, resilience is a driving force of post-disaster entrepreneurs. While entrepreneurs during “regular” times are often deterred by a fear of failure, entrepreneurs during disaster scenarios do not appear to weigh fear of failure as heavily in their decision making. Instead, resilience during disaster scenarios “acts as a shield” that protects entrepreneurs from considering a fear of failure ([Monllor and Murphy, 2017](#), p. 628).

Consider the case of Hurricane Sandy in 2012. Hurricane Sandy resulted in at least \$70 billion worth of damage; destroying homes, places of worship, grocery stores, daycares and more. It also claimed several hundred lives while ravaging its way along the East Coast ([FEMA, 2018](#)). As [Storr et al. \(2017\)](#) detailed, one Jewish community on the Rockaway Peninsula, part of Queens, NY responded quite robustly, despite having many homes damaged in the community, no power for several weeks, severe flooding, and food, water and gasoline shortages ([Storr et al., 2017](#), p. 889). As [Storr et al. \(2017\)](#), p. 885) detailed,

Prior to Hurricane Sandy (and after), the Orthodox Jewish community was thriving in the Rockaway Peninsula. Private actors within the community provide[d] a diversity of goods and services, including social services (money, food assistance and other services), community centers, private schools, an ambulance service and a civilian patrol.

Arguably, the commercial and social entrepreneurs in that community already had large amounts of cohesion leading up to the disaster. Being so well equipped to handle the daily needs of the community, businesspeople, rabbis and community leaders across the area were able to quickly coordinate needs of community members. They were also able to utilize on-the-ground knowledge and provide the correct level of assistance. For instance, one rabbi in the community, Rabbi Kruger, explained, “[w]e knew how many twin beds, double beds, bunk beds, baby strollers [were needed], real basic stuff that a family’s got to have” ([Storr et al., 2017](#), p. 888). The entrepreneurship of Rabbi Kruger, who was able to use local and cultural knowledge, allowed the Jewish community in the area to stay safe, receive basic necessities, rebuild relatively quickly, and, importantly, maintain morale within the community. Notably, then, post-disaster entrepreneurs do often bring about recovery since they are able to help community members cope and rebuild following the disaster.

Putting this in the context of Kirzner’s “identification” moment and Schumpeter’s “action” moment, natural disaster entrepreneurs, because they are embedded in their communities, can identify the needs of their community relatively easily, especially depending upon the levels of cohesion in the community leading up to the disaster. After Hurricane Sandy, for

instance, it was relatively easy to recognize that the electricity was out in certain neighborhoods or that water lines were broken in certain areas, and to provide appropriate aid. Just like necessity entrepreneurs, post-disaster entrepreneurs are well positioned to identify the needs of their community. However, the Schumpeterian action moment becomes much more uncertain. Although knowing what community members need is often relatively easy to determine, knowing how to satisfy those needs is more difficult. While entrepreneurs certainly do act in this setting, as shown with Rabbi Kruger's actions, it becomes harder to do so after a disaster strikes, as community members leave the area and financial obstacles become larger.

2.3 Long-term conflict entrepreneurs are active over extended periods, confronted with high uncertainty, deal with system wide challenges, are place-dependent, and rely on local and customary knowledge

Long term conflict entrepreneurship is another form of crisis entrepreneurship [8]. Unlike post-disaster entrepreneurs, long-term conflict entrepreneurs do not bring about recovery from a conflict. Instead, they allow those around them to continue coping with the current situation by providing necessary goods and services in relatively effective ways. As Naudé (2009) details, because of low state capacity in conflict and post-conflict contexts, many people in developing countries rely upon long-term conflict entrepreneurs for help more so than they rely upon state aid. These entrepreneurs must typically deal with prolonged periods of profound uncertainty as their communities are dealing with war or civil war. Additionally, their entrepreneurial activities sometimes put their lives and safety in even more danger. As Cañares (2011) discusses, oftentimes starting an entrepreneurial enterprise might be a long-term conflict entrepreneur's only option when conflicts are severe, and opportunities are scarce or nonexistent. Here, again, there are definite links to necessity entrepreneurship.

Unlike post-disaster entrepreneurs, though, long term conflict entrepreneurs face system-wide challenges, certainly more of the system is typically impacted. Since war likely affects an entire country or region, not just neighborhoods or parts of a city, it tends to affect entrepreneurs throughout the system. As Brück *et al.* (2011) highlight, there are often two distinct targets in long-term conflicts: resources or people. Brück *et al.* (2011, p. 163) discuss how the Rwandan war and genocide mainly displays an attack on human capital, as the conflict involved a genocide against the Tutsi population, while the wars in Mozambique instead were known for their destruction of infrastructure. In either case, attacks on both physical capital and human capital present systemic challenges to the long-term conflict entrepreneur.

In a case study of long-term conflict entrepreneurs in war-torn Afghanistan, Bullough *et al.* (2014) found that two major traits were frequent in long-term conflict entrepreneurs. First, long-term conflict entrepreneurs were characterized by resiliency, or their ability to cope with such extreme circumstances and nevertheless continue to engage in entrepreneurial action rather than giving up. Second, they found that long-term conflict entrepreneurs all had self-efficacy, or a belief in one's ability to organize and execute their plans. In tumultuous situations, self-efficacy becomes rare, as does resiliency, thus making these entrepreneurs so notable.

When scenarios do become so severe and uncertain, entrepreneurial intentions often are diminished (Bullough *et al.*, 2014). Stated another way, in some instances, the costs of entrepreneurship simply become too high, discouraging entrepreneurial action that would have happened in more certain or less severe scenarios. While Bullough *et al.* (2014) do find that resilient individuals are more likely to be entrepreneurial during a long-term conflict, perceived danger still negatively correlates to entrepreneurial intentions and actions, even among resilient individuals. As Brück *et al.* (2011, p. 163, *emphasis added*) discuss,

If conflict affects a business in a once-off, shock-like manner, then activities may be resumed following a cessation of violence, resulting in a temporary dip in profits. In contrast, *a more persistent*

conflict may have a pernicious impact on firm-level investment and growth over the long term and may result in a growing number of business failures.

Although these entrepreneurs provide critical goods during conflicts, because these conflicts are long-term, there is likely to be lower investment and higher firm exit, which has a negative impact on entrepreneurial actions.

Relatedly, local and customary knowledge play a large role in long term conflict entrepreneurship and the types of goods and services that long term conflict entrepreneurs offer. This type of entrepreneur, like post-disaster entrepreneurs, is place dependent as they must have intricate knowledge of local context and situations to be able to survive the conflict, connect with others for assistance, and engage in entrepreneurial action (Cheung and Kwong, 2017). Their knowledge of local customs, of local resources and conditions, of the demand of certain goods and the various, and of ways to gain access to needed supplies, are critical to their successful entrepreneurial endeavors. The long-term conflict entrepreneur can readily identify what types of goods and services are needed by his customers because like them he exists in this situation for extended periods of time and is able to discern what goods and services could ameliorate the situation or help those in the community. For instance, in Pakistan, Noor *et al.* (2016) find that entrepreneurs were able to navigate a war-time context and navigate dealings with the Taliban due to local knowledge, with some entrepreneurs working with the Taliban in order to preserve their business and their livelihoods. Similarly, Althalathini *et al.* (2020) find that Muslim women in Afghanistan, Iraq and Palestine rely heavily upon their preexisting religious and cultural knowledge to make their enterprises successful. Although most studies of long-term conflict entrepreneurship conceive it as being primarily oriented toward the survival of the entrepreneur and their customers, Joseph and Van Buren (2021) find that long-term conflict entrepreneurs who create value for the community can even foster peace [9].

Entrepreneurs who exogenously enter another area that is vastly different in culture, religion, and so forth, such as refugees, however, are even able to (1) rely upon other refugees and their preexisting social capital, despite being in a new location, and (2), integrate with local cultures and understand local knowledge *through* long term conflict entrepreneurship (Desai *et al.*, 2021; see also Brinkerhoff, 2011 and Kwong *et al.*, 2019). Similarly, long term conflict entrepreneurs who were forced to flee their home country and then return home years later rely heavily upon pre-existing informal networks from years prior, since formal ties (such as those within the government) are untrusted by those returning (Williams *et al.*, 2022).

This is not to say the opportunity recognition moment is entirely straightforward since uncertainty in this scenario is extremely high. Acting, however, becomes especially difficult in this scenario. While an entrepreneur during a country-wide conflict may exhibit resiliency and understand what types of goods and services might best help those around him, acting upon such knowledge could be impossible. Thus, like the previous cases explored, Kirznerian opportunity recognition can happen in this scenario, but Schumpeterian action becomes much more difficult, costly, and extremely uncertain to take in the context of a long-term conflict [10].

2.4 Pandemic entrepreneurs have elements of the other forms of crisis entrepreneurship

Pandemic entrepreneurship is entrepreneurship that occurs during a pandemic that is oriented toward helping others survive and combat the pandemic. As such, not all entrepreneurship that occurs during a pandemic is pandemic entrepreneurship. An entrepreneur merely adapting her enterprise so that she can continue operating during the pandemic is not necessarily engaging in pandemic entrepreneurship. She might be if the goods and services that she is providing or her continuing to operate are essential to the survival of others [11]. Pandemic entrepreneurship is about promoting the pandemic survival

of their customers. Pandemic entrepreneurship has elements of all the other forms of crisis entrepreneurship. Like the ones above, however, pandemic entrepreneurs faces differing constraints and so represent a variation of crisis entrepreneurs. Pandemic entrepreneurship shares characteristics of other forms of crisis entrepreneurship, yet it is itself a unique form of crisis entrepreneurship. See [Table 1](#) for a summary. This will become clearer as we discuss the key elements of pandemic entrepreneurship, using illustrations from the COVID-19 pandemic.

Pandemic entrepreneurship occurs over a long period of time due to the nature of pandemics. Pandemics typically last for at least a year, if not years, with waves of the virus hitting depending upon weather and region, among other factors. Moreover, COVID-19 can be a chronic health issue, where those with the virus could have long lasting effects (known colloquially as long-haulers or long-covid). Additionally, the virus often mutates, and these mutations have meant that the COVID-19 pandemic has been a persistent health issue for multiple years. The pandemic has lasted beyond two years, with shutdowns, mask orders and other guidance changing as the waves of COVID-19 intensify or calm. This is consistent with previous pandemics. The 1918 flu pandemic lasted in some places until 1921 [12]. It is important to note that this long-term characteristic is comparable with the situation that long-term conflict entrepreneurs occupy.

Relatedly, like necessity entrepreneurs, post-disaster entrepreneurs, and long-term conflict entrepreneurs, pandemic entrepreneurs face extremely high uncertainty. [Finn et al. \(2020\)](#) for instance, detail how the COVID-19 pandemic is extremely uncertain for entrepreneurs, because of both the magnitude and duration of the crisis (see also [Lungu and Bogoslov, 2020](#)). High levels of uncertainty, of course, plague most crises. But because pandemics tend to be more infrequent than, say, a Hurricane, and often carry greater variance of qualities (like symptoms and necessary public health responses), especially at the start of the pandemic, pandemic entrepreneurs are likely confronting novel situations.

Consider a state's emergency preparedness for natural hazards versus their preparedness for pandemics. Often, states that routinely face crises like hurricanes or earthquakes shape their life around these disasters, at least in part. For instance, homes are built to be earthquake resistant in areas with many earthquakes, and homes are built in certain areas or with certain materials to withstand hurricanes in regions where those are frequent. Similarly, post-disaster entrepreneurs in regions where disasters are common can do a great deal to prepare for the disasters. They can, for instance, pre-stock materials they expect customers to need. While these methods are not foolproof, and while natural disasters often disrupt many well-laid plans, post-disaster entrepreneurs often know how to prepare for a disaster and what best steps to take prior to and after a disaster. When pandemics occur, however, as was the case in 2020, many are so unsure of even what the next day held, that grocery stores had shortages of essential items like water, poultry and cleaning supplies not for days or weeks, but for months.

	Necessity	Post-Disaster	Long-Term Conflict	Pandemic
Occurs over an extended period			✓	✓
Confronted with high uncertainty	✓	✓	✓	✓
Deals with system wide challenges			✓	✓
Models Resiliency	✓	✓	✓	✓
Is Place-dependent		✓	✓	✓
Relies on local and customary knowledge	✓	✓	✓	✓
Brings about recovery/development		✓		✓

Table 1.
Types of crisis
entrepreneurship
including pandemic
entrepreneurship

Pandemics, like long-term conflicts, also present system wide challenges. Indeed, pandemics impact multiple countries and, sometimes, the entire world. As has been seen with the COVID-19 pandemic, not only did the original virus spread through the world, but then variants (especially stronger, more contagious variants) spread through the entire world. After the initial spread of COVID-19, for instance, there was a summer 2021 surge of the delta variant and a winter 2021/spring 2022 surge of multiple omicron variants. Thus, the initial pandemic and its following variants led to system wide challenges that presented entrepreneurs with not only local challenges to solve, but also with country-wide and worldwide challenges to confront.

Additionally, like all other types of crisis entrepreneurs, pandemic entrepreneurs must overcome financial obstacles (see [Belitski et al., 2022](#)). Of course, in times of crisis, financial obstacles are not uncommon whether as a direct result of the crisis (such as a recession or depression) or whether as a byproduct of the crisis (such as a Hurricane or a conflict). Pandemics bring about financial challenges largely because policy makers often respond to them by limiting or closing places of business in an effort to stop the spread of the illness. Consequently, workers are often laid off or furloughed and those who retain their jobs can become ill and so unable to work for periods. It is estimated that 30% of new entrepreneurs in 2020 were unemployed when they started their business, suggesting that pandemic entrepreneurship like necessity entrepreneurship is a form of “push” entrepreneurship ([Casselman, 2021](#)). Stated another way, pandemic entrepreneurs are faced with an abnormally difficult financial situation, likely harming opportunity-driven entrepreneurial intentions but creating more necessity-driven entrepreneurial intentions ([Fairlie and Fossen, 2019](#)) [13].

Pandemics, thus, necessarily make Kirznerian moments of entrepreneurial identification much more uncertain, largely due to the shifting situations, frequently changing policy environments, and extremely high uncertainty brought about by a pandemic. This is comparable to the kind of uncertainty individuals experience during a long-term conflict. An entrepreneur in that situation must navigate a war-torn country while working with shifting conditions, unknown futures, and constant tumult. While other crises contribute to the uncertainty crisis entrepreneurs must confront, often the situation is known to the entrepreneur (or becomes known relatively quickly), which contrasts with pandemics and long-term conflicts. That is, entrepreneurs can stay informed on the risks from a Hurricane or the effects of an earthquake. Conditions are constantly shifting throughout the pandemic, however, as new government mandates are adopted, new variants emerge which necessitate changes in action and reversion to stricter, previous policies and new scientific knowledge emerges that can be leveraged to mitigate the effects of the pandemic. Moreover, different areas can have varying regulations (and at different times), so an entrepreneur operating in multiple jurisdictions may face shifting regulations and different regulatory regimes. Another important, shifting condition to remember is that people did not willingly comply to every and all regulations and orders throughout the COVID-19 pandemic. While the politics and partisanship at play here is outside of the scope of this paper, it is important to remember that individuals may not respond how policy makers and even pandemic entrepreneurs expect.

Importantly, pandemic entrepreneurs overcome these challenges to provide *necessary* goods, like post-disaster and long-term crisis entrepreneurs. [Storr et al. \(2021\)](#) argue that pandemic entrepreneurs provide the goods and services needed to both survive and combat the pandemic. Similarly, [Liñán and Jaén \(2020\)](#) discuss how new pandemic entrepreneurs may enter the market to improve existing goods and services or invent completely new goods and services. Likewise, [Belitski et al. \(2022\)](#) detail how dynamic capabilities, or the ability for an entrepreneur to dynamically shift production processes or other firm processes, help entrepreneurs enable communities to get through the pandemic as it has in past crises. Necessary goods and services include basic needs like food and water and other items for staving off or surviving the crisis. Pandemic entrepreneurs, then, would provide necessary

goods not only like food and water, but also pandemic-related goods like masks, hand sanitizer, ventilators and other medical goods. Breweries, for instance, temporarily stopped or decreased alcohol production to instead create sanitizer amid shortages [14]. Others learned how to sew masks and donated or sold them to local hospitals [15]. And, technologies like Zoom and WebEx were used to shift work, school, and even happy hours and workouts online. Engineers Cristian Fracassi and Alessandro Romaioli, during the height of the Italian crisis with COVID-19 in 2020, 3-D printed ventilator valves, allowing patients the lifesaving access they needed [16]. Companies like GM converted production lines for automobiles into production lines for ventilators [17]. Of course, the list discussed here is by no means exhaustive. Many entrepreneurs were, by necessity, pushed into providing many necessary goods throughout the COVID-19 pandemic.

Pandemic entrepreneurs also introduce new goods and services (Liñán and Jaén, 2020; Belitski *et al.*, 2022). Many new goods and services were introduced or repurposed during the pandemic. Most importantly, COVID-19 tests and lifesaving vaccines were all developed through pandemic entrepreneurship. Other goods and services which enabled distancing and protection from the virus also emerged due to pandemic entrepreneurship. For instance, during the pandemic in the US, Uber introduced a new technology, called Uber Connect. Uber Connect transports items from one house to another if one has loved ones in the area but wants to social distance from them. Importantly, Uber also introduced Uber Cabinet, which delivers over-the-counter medicine to those in need [18].

Additionally, like all other crisis entrepreneurs, pandemic entrepreneurs model resiliency. When faced with any crisis, entrepreneurs that are to survive (and perhaps even thrive) must be resilient. For instance, during post-disaster scenarios, Monllor and Murphy (2017) find that resilience is a driving force of post-disaster entrepreneurs. And, in long-term conflict scenarios – perhaps some of the most difficult scenarios in which to be entrepreneurial – Bullough *et al.* (2014) find that long term conflict entrepreneurs tend to be extremely resilient. Regarding the COVID-19 pandemic, Liñán and Jaén (2020) discuss that resilience is the key force that will keep entrepreneurs from stopping work during the pandemic. Meyer *et al.* (2021), similarly, detail how entrepreneurs' resilience and their innovations will facilitate new patterns of work, learning and leisure activities in post-COVID-19 societies. Acciarini *et al.* (2021) study firms in Italy and find that CEOs implemented short- and long-term strategies to enable firm resilience. Portuguese-Castro and Gómez-Zermeño (2020) find specific resilience traits that would help entrepreneurs during a pandemic, such as attitudes adopted toward the crisis and human and social capital already existing prior to the crisis. Similarly, Stephan *et al.* (2021) found that many entrepreneurs had resilience during, as they reported positive outlooks for their businesses' long-term future. Moreover, nearly 42% of the entrepreneurs surveyed cited resilience and business efficiency as main reasons for their optimistic outlook. Sakar and Clegg (2021) analyze small business and entrepreneurial resilience during the COVID-19 pandemic. They find that small firms and senior managers within firms were able to cope, adapt, and swiftly switch company goals. Specifically, they find that the trait of resilience led to entrepreneurs being able to accept the new, changing situations and take stock of what aspects of the business may be damaged due to the pandemic, and what aspects of the business needed to be immediately changed due to the pandemic. Although much of this research focused on how non-crisis entrepreneurs adapted to the pandemic in order to continue to operate, resiliency is likely to be a characteristic of pandemic entrepreneurs.

There have been plenty of examples of resilient pandemic entrepreneurs throughout the COVID-19 crisis. One of Ernst and Young's "Entrepreneur of the Year" finalists in 2021 was Roisin Malloy, who developed a non-contact infrared thermometer in 2016, a product which of course proved useful through the COVID-19 pandemic. When the COVID-19 crisis hit, she cited resilience as a reason she persisted through difficult times. Her thermometers were stuck in customs, and she subsequently spent hours on the phone with customs officials

across the globe to change the legal codes so that they could be shipped quicker. Another one of the finalists, a biotech worker who previously worked for Pfizer, cited resilience as one of the primary traits that entrepreneurs need, especially when crises strike [19]. An entrepreneur in Peru was documented as running multiple businesses and employing 50 locals. As she details, when COVID-19 struck her community, shutting down would have negatively affected the 50 families of the workers she employed. Instead, she cites her resilient nature for the reason her businesses stayed open, coming up with other productive tasks for her employees to do. For instance, one of her businesses was a coffee shop, and instead of acting as baristas, her employees transitioned to packagers and shippers of her goods [20].

Pandemic entrepreneurs are also place dependent and rely upon local and customary knowledge. Place dependent entrepreneurs are often motivated by a desire to see their hometown (or neighborhood, or Church group, for example) to thrive in normal times or to return, recover, and thrive following a crisis (see Chamlee-Wright and Storr, 2011; Cheung and Kwong, 2017). While these moves are likely profit-oriented, place-based entrepreneurs also care about the ultimate success of their communities (see Meyer *et al.*, 2020). This perhaps is why we saw restaurants deliver free or subsidized meals to at-risk communities, hospital staff, and other front-line workers during the pandemic [21, 22].

Like other crisis entrepreneurs (post-disaster and long-term conflict), pandemic entrepreneurs act most keenly to help mitigate or solve the crisis because of the local knowledge they possess. Arguably, local entrepreneurs have access to information that others do not. Take, for instance, the breweries discussed previously who shifted operations from making alcohol to making hand sanitizer. They had unique knowledge on the production process to making certain solutions and their ability to tweak production to make sanitizer instead of alcohol. They were already equipped not only with the physical capital, but also with human capital and the knowledge of how to operate such processes. Another related example is the car assembly lines that were transformed to make ventilator parts. Other industries did not have the correct equipment or know-how to begin such processes.

Additionally, pandemic entrepreneurs can bring about community recovery. This is different than all other crisis entrepreneurs except post-disaster entrepreneurs, who also try to help their communities recover from a disaster scenario. One of the ways pandemic entrepreneurs bring about recovery is through economic rebound. As is now widely known, the pandemic caused one of the greatest financial shocks since the Great Recession. Pandemic entrepreneurs were particularly successful at figuring out ways (1) to help community members and other businesses to connect with others electronically or when socially distanced, and later, (2) to help individuals and other business to resume in-person activities. Airlines like United, for instance, devised new airflow ventilation systems that not only recirculate air every 2–3 min but also remove 99.7% of viruses and bacteria [23].

More importantly, pandemic entrepreneurs also directly combat the pandemic. At the beginning of the pandemic, scientists worked hard to determine what medicines might protect us against or treat COVID-19. Entrepreneurial scientists devised and sold COVID-19 tests, first several-day and then rapid tests, which arguably saved many lives and decreased case numbers as individuals knew whether they needed to isolate and physically distance if they were sick. And, most importantly of all, pharmaceutical companies throughout the world came up with vaccines to prevent individuals from getting sick with COVID-19, and medicines to help individuals remain healthy even if contracting the virus (such as Paxlovid, created by Pfizer [24]). Indeed, vaccines became available in the US for frontline healthcare workers less than a year into the pandemic, which is not only a scientific feat, but an entrepreneurial feat not seen in past pandemics. Just over a year into the pandemic in the USA, vaccines were widely available for all ages besides children (as tests were still determining whether the vaccine was safe for younger groups). There are currently three approved vaccines in the USA (Pfizer-BioNTech, the Moderna and the Johnson&Johnson/

Janssen), although others like the Russian and Chinese developed vaccines are available in other parts of the world. These three vaccines were developed very quickly, are very effective and were all created in part due to entrepreneurial efforts. Most notable of these three for the purposes of this paper is the Pfizer-BioNTech vaccine. Dr. Sahin and Dr. Türeci, the husband/wife duo behind the vaccine, had been working on mRNA technology for years and announced in 2018 they believed it was possible to make mRNA vaccines for the flu (Gelles, 2020). Upon learning about the novel coronavirus in January 2020, they shifted their entire lab operations to developing a vaccine against the virus. Their entrepreneurial endeavors long before the pandemic inevitably led to their ability to so quickly develop a successful vaccine once COVID-19 struck. This story is reminiscent of Belitski *et al.* (2022) idea of entrepreneurial dynamic capabilities. These entrepreneurs likely brought the world toward the final chapter of the COVID-19 pandemic, although time will tell whether new variants begin to spread and harm even those vaccinated individuals.

Even though some pandemic entrepreneurs were extremely successful, they faced much higher costs of action than they would in “regular” times. By all accounts, crises including global pandemics raise the cost of action and bring about extreme uncertainty, yet despite this, entrepreneurs find ways to provide necessary goods and services and even bring about recovery. One important challenge facing pandemic entrepreneurs not discussed above but important to note is that pandemics (in some places and times) necessitate physical distancing. All other forms of crisis entrepreneurship allow for entrepreneurs to be work face-to-face with their employees, customers, community members and government officials. Face-to-face communication can lower the costs of entrepreneurial action and provide more helpful management (Jensen *et al.*, 2018). In times of pandemic, however, communication becomes costlier if distancing is necessitated, thus raising costs associated with all forms of entrepreneurship.

3. Conclusion

While similar along several dimensions to other forms of crisis entrepreneurship, pandemic entrepreneurship is a unique form of crisis entrepreneurship that shares characteristics with several different forms of entrepreneurship. We argue that during a pandemic, there is much greater uncertainty around both Kirznerian and Schumpeterian entrepreneurial moments. Despite this, pandemic entrepreneurship still occurs. In terms of the setting of pandemic entrepreneurship, pandemic entrepreneurship occurs over an extended period of time, like long-term conflict entrepreneurship. Additionally, pandemic entrepreneurs are confronted with high uncertainty, like necessity, post-disaster, and long-term conflict entrepreneurs. Also, pandemic entrepreneurs face system-wide challenges, like long term conflict entrepreneurs. And, pandemic entrepreneurs must overcome significant financial obstacles, like the other forms of crisis entrepreneurship. Importantly, pandemic entrepreneurs model resiliency – a driving force of many entrepreneurs in times of crisis. Pandemic entrepreneurs are also place-dependent, meaning they place special emphasis on their own community’s rebound and recovery. This is similar to post-disaster entrepreneurs and long-term conflict entrepreneurs. Relatedly, pandemic entrepreneurs rely upon local and customary knowledge. This is shared by all crisis entrepreneurs, as entrepreneurs must be familiar with local, tacit and customary knowledge to be successful. Last, and arguably most importantly, pandemic entrepreneurs bring about recovery and development. This is shared with post-disaster We argue that pandemic entrepreneurs help to bring about economic recovery and, more importantly, recovery from the actual virus.

There are large advantages to recognizing pandemic entrepreneurship and situating it within the crisis entrepreneurship literature. As crisis entrepreneurship is broad and covers so many differing scenarios, it is important to recognize the ways in which pandemic entrepreneurs differ from and compare to other crisis entrepreneurs. This not only helps

clarify our scholarly discussions but can help in recognizing on-the-ground entrepreneurial efforts and understanding motives and intentions of entrepreneurs and may perhaps predict barriers faced by entrepreneurs. As [Ratten \(2021a\)](#) argues, there are many areas that entrepreneurs can begin addressing due to the pandemic, including “digital transformation, leadership, business impact, and social inclusiveness.” The pandemic unveiled many underlying issues that create space for entrepreneurial innovation and action, even if unrelated to the pandemic. Since crisis entrepreneurs are unique depending upon the situation, understanding the spatial, temporal and institutional contexts of pandemic entrepreneurship can help us understand real-world entrepreneurial efforts more clearly.

Moreover, understanding pandemic entrepreneurship and what makes it unique is important for scholars and policymakers who might misunderstand or misinterpret certain actions of entrepreneurs during pandemics if they do not have a framework through which to understand such actions. [Storr et al. \(2022\)](#) discuss how pandemic entrepreneurship can be encouraged or impeded by government actions, so policymakers ought to understand such entrepreneurship so as to encourage and not impede it. Importantly, there is the very real possibility that the world may be confronted with yet another global pandemic, epidemic, or further variants of the COVID-19 pandemic, especially given our interconnected and globalized world.

Specifically, several policy conclusions follow from our discussion in this paper. First, because pandemic entrepreneurs face extremely high uncertainty, policymakers ought not increase this when they can refrain from doing so. So, policies that increase uncertainty and increase regulatory burdens (like fining and regulating distilleries creating hand sanitizer in the height of the pandemic [25]) can often hinder entrepreneurship and prevent entrepreneurs from beginning ventures in the first place, if such regulatory burdens become too large and become very common. Moreover, clear and transparent guidance from government officials in future pandemics could also aid entrepreneurs who often were uncertain whether they could travel, buy and sell in surrounding jurisdictions, and what the laws were regarding masking and distancing. Policy makers should work to understanding the spatial, temporal, and institutional contexts of pandemic entrepreneurs in order to avoid hampering it and in so doing promote society’s ability to survive and combat the pandemic.

One worrisome policy implication of the above is that much of what counts as pandemic entrepreneurship might be spurious discoveries. The table-side air purification systems developed and marketed to restaurants and businesses so that they could comply with COVID-19 regulations or signal to patrons that they were taking the public health messaging around COVID-19 seriously, for instance, might not have done much to prevent the spread of the virus. Similarly, the technology developed and sold to firms to facilitate telework when social distancing was mandated might not have been necessary to allow for safe work during the pandemic absent the regulations. Policy makers should avoid triggering these kinds of spurious discoveries.

Future research could apply our setting and theory of pandemic entrepreneurship to case studies of pandemic entrepreneurship throughout the COVID-19 crisis. Scholars could also use our research to understand best what policies might aid pandemic entrepreneurs, following from [Storr et al.’s \(2022\)](#) discussion of policymakers and their effects on entrepreneurs.

Notes

1. The New York Times ([Casselmann, 2021](#)) and Bloomberg ([Schrager, 2021](#)) have both discussed how the pandemic led to increased entrepreneurial activity in the US.
2. [Block and Koellinger \(2009\)](#) find that necessity entrepreneurs, or those pushed into starting a business rather than those specifically seeking out such opportunities, have lower “procedural utility”, or lower utility from having little to no say in their entrepreneurial actions.
3. [Nikiforou et al. \(2019\)](#) push back against this specific dichotomy, as they argue that duration of unemployment can both affect if one partakes in necessity entrepreneurship, and the sectors where

necessity entrepreneurship occurs. Relatedly, *Giacomin et al. (2011)* discuss how the line between necessity and opportunity entrepreneurship is not as clear as it may seem, and that some jobseekers may in fact have traits of both when undertaking entrepreneurial endeavors.

4. See *Sautet (2013)* for a discussion of the difference between local/necessity and systemic entrepreneurship. According to *Sautet (2013)*, local/necessity entrepreneurship is productive but unlikely to contribute significantly to economic growth and development.
5. Interestingly, *Block et al. (2015)* find that firms started by necessity entrepreneurs tend to focus more on lower costs, or a “cost leadership strategy”, rather than a “product differentiation strategy.” This suggests that necessity entrepreneurs are more worried about costs and profits more so than other market strategies, when the two are in contention.
6. This is one reason why the necessity entrepreneurship concept defined in contrast to opportunity entrepreneurship has been challenged.
7. Bricolage, in this instance, refers to an entrepreneur or community who gathers capital (whether it be social, physical, human, or otherwise) and pieces it together to make a new combination of capital that she leverages to help navigate through or recover from a disaster.
8. See *Aldairany et al., (2018)* for a systematic overview of the literature.
9. See also *Coyne et al. (2022)*.
10. See *Demirgüç-Kunt et al. (2011)* for a discussion of post-conflict entrepreneurship, which is distinct from conflict entrepreneurship, and *Boudreaux (2007)* for a case study of post-conflict entrepreneurship in Rwanda.
11. See, however, *Storr et al. (2021)* for a discussion of how difficult it is for policy makers especially to distinguish between essential and non-essential goods and services.
12. See <https://www.abc.net.au/news/health/2020-09-08/covid-coronavirus-how-do-pandemics-end-and-how-will-this-one-end/12596954>
13. Interestingly, while most financial crises affect male populations more than female populations (because male-dominated sectors tend to be hardest hit by financial crises), the COVID-19 economic fallout harmed women relatively more than men, because females were more often employed in “essential” jobs, and because women took over more of the child labor than did men. See *Gadarian et al. (forthcoming)*, Ch. 6 for a more in-depth discussion of this issue.
14. See <https://parade.com/1011922/jerylbrunner/distilleries-making-hand-sanitizer/>
15. See <https://www.businessinsider.com/people-are-making-diy-face-masks-amidst-shortages-due-to-coronavirus-2020>
16. See <https://www.nytimes.com/2020/03/22/opinion/ventilators-coronavirus-italy.html>
17. <https://www.themanufacturer.com/articles/flexing-those-3d-printing-muscles/>
18. See <https://www.uber.com/newsroom/moving-more-of-what-matters-with-delivery/>
19. See <https://www.irishtimes.com/business/ey-entrepreneur-of-the-year-award-don-t-listen-to-naysayers-prove-them-wrong-1.4639835>
20. See <https://voices.ilo.org/stories/a-woman-entrepreneur-in-peru-thrives-with-resilience-and-empathy>
21. Pizza Hut, for instance, delivered 300,000 free meals to hospital staff in March 2020. This, again, may be profit-seeking in terms of the press they receive, but it seems to go beyond that. See <https://www.bighospitality.co.uk/Article/2020/03/30/Pizza-Hut-and-Deliveroo-to-serve-300-000-free-meals-to-hospital-staff>
22. See also <https://www.nytimes.com/2020/03/30/dining/restaurants-hospitals-coronavirus.html> and <https://www.nbcnews.com/health/health-news/restaurants-stay-closed-chefs-still-cooking-health-care-workers-n1186736>

23. See <https://hub.united.com/2020-07-20-united-airlines-to-maximize-ventilation-system-during-boarding-and-deplaning-2646439262.html>
24. See <https://www.pfizer.com/news/press-release/press-release-detail/pfizers-novel-covid-19-oral-antiviral-treatment-candidate>
25. <https://www.washingtonpost.com/food/2020/12/31/distilleries-helped-out-by-making-hand-sanitizer-now-theyve-been-hit-by-unexpected-fda-fees/>

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