



Entrepreneurship during a pandemic

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Abstract

Commercial and social entrepreneurs are likely to help communities combat public health crises. Research on responses to pandemics has underappreciated the critical role of entrepreneurs. In the context of post-disaster response and recovery, entrepreneurs provide needed goods and services, repair and rebuild disrupted social networks, and can act as focal points for disaster survivors as they develop their plans to rebuild. During a pandemic, entrepreneurs perform similarly important economic and social functions. This article highlights these functions, including (1) providing the goods needed to survive and combat the pandemic, (2) performing the services needed so that people can stay productive and connected during the pandemic, and (3) acting as a source of community support and leadership. It also discusses how entrepreneurs are able to perform these roles despite operating in an environment that constricts the range and nature of entrepreneurial activity. Finally, this article describes a legal regime that will promote entrepreneurship during a pandemic.

Keywords COVID-19 · Disaster recovery · Entrepreneurship · Pandemic · Resilience

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1 Introduction

The COVID-19 pandemic is an ongoing global crisis that has been accompanied by immense economic, social, and psychological costs. Policymakers have grappled with how to respond to the spread of the disease, both before and after vaccines became widely available in early 2021. Public officials across the globe ordered residents to practice physical distancing, limit travel, and only engage in essential activities at the onset of the pandemic as well as when new variants emerged or there was an increase in cases. For instance, all states in the United States, except for South Dakota, issued some form of stay-at-home order or mandate to close high-contact businesses and activities in the spring of 2020 (Mendelson, 2020; NASHP, 2020; Storr et al., 2021a). Many jurisdictions across the world also mandated the wearing of masks in public spaces. Additionally, schools and universities closed or switched to online and hybrid learning strategies; remote-capable businesses learned to embrace telework; restaurants closed or restricted their dine-in operations and pivoted to providing pickup and delivery options to customers; and many religious services moved online. While the U.S. unemployment rate peaked at 14% in April 2020, it was 6.7% in December 2020 and 2021 has seen labor mismatches and labor shortages in some high-contact and high-risk jobs.¹

Pandemics are not new, and existing research has explored how communities and policymakers have and should respond to pandemics. This literature largely examines the negative health, economic, and social impacts of pandemics, as well as the public health and scientific challenges associated with pandemics (for instance, see DeBruin et al., 2012; Mackey & Liang, 2012; Qui et al. 2017; French & Raymond, 2009; Moon et al., 2015; Boyd et al., 2017; Fedson, 2003; Stephenson et al., 2004; Collin & de Radiguès, 2009). Additionally, the literature explores the potential of policy to mitigate the economic and social harms associated with pandemics and pandemic responses (see Parmet, 2006; Crouse Quinn 2008; Gostin & Ayala, 2017).

Much of the emerging literature on COVID-19 has focused on the economic, social, and psychological costs of the pandemic and what can be done to blunt those costs. Early research has highlighted the negative impacts on small businesses, startups, and other entrepreneurial ventures (see Fairlie, 2020; Meahjohn & Persad, 2020; Block et al., 2021). Additionally, research has examined the role of social capital in the pandemic (see Bartscher et al., 2020; Boronovi & Andrieu, 2020; Makridis & Wu, 2020; Marston et al., 2020; Storr et al., 2021b), the institutional capabilities and limitations of local government and public–private collaboration (see Dzigbede et al., 2020; Wilson et al., 2020), and the need for dynamic and adaptable government responses (Mazzucato & Kattel, 2020). Further, public policy responses have largely focused on how to mitigate the economic crisis, such as bolstering small businesses through loans and grants, softening the effects of unemployment through unemployment insurance, and stimulating the economy through cash payouts. The existing literature and policy prescriptions, however, have underappreciated the role

¹ Data obtained from the United States Bureau of Labor Statistics' "The Employment Situation—December 2020," found here: <https://www.bls.gov/news.release/pdf/empst.pdf>.

of entrepreneurship in making public health responses effective or helping communities cope with and overcome crises (see Ratten, 2020).² In this paper, we argue that entrepreneurs, especially commercial and social entrepreneurs, are necessary for communities to recover from pandemics. And, subsequently, that public health responses to pandemics should remove barriers to entrepreneurship.

Societies across time and geographical location have endured and recovered from the death, destruction, and displacement brought on by profound crises, such as hurricanes, famines, and war. Previous research on how communities confront crises like natural disasters suggests that commercial and social entrepreneurs are likely to play a critical role in helping communities combat public health crises like the COVID-19 pandemic (see Bolin & Stafford, 1998; Tedeschi & Calhoun, 2004; Zahra et al., 2008; Welter, 2011; McKeever et al., 2015; Storr et al., 2015; Grube & Storr, 2018). For example, research on community response and recovery after disasters has shown that commercial and social entrepreneurs are key drivers of disaster response and recovery (Storr et al., 2015). The recovery process for any social crisis depends on experimentation, bottom-up discovery, and entrepreneurial action (see Chamlee-Wright, 2013; Haeffele & Storr, 2020a). During a pandemic, like in other crises, entrepreneurs can and do perform critical economic and social functions in helping individuals and communities cope and recover.

Furthermore, entrepreneurs are not only the drivers of response and recovery after a crisis; they also promote societal resilience, allowing communities to adapt to future risks (Shepherd & Williams, 2020; Storr et al., 2015). For example, during the COVID-19 pandemic, many social entrepreneurs across the globe have organized internet-based mutual aid societies that have leveraged social connections in local neighborhoods (Storr et al., 2021b). These mutual aid societies have successfully provided food deliveries, facilitated resource sharing, and identified high-risk residents in need of support.³ Building this capacity increases the chances of successfully combatting and rebounding from future crises. Critical factors of resilience and recovery include a community's capacity for self-organization and entrepreneurship post-disaster, and the policy ecosystem that can either enhance or subvert communities' capacity to respond (Grube & Storr, 2013; Storr et al., 2015). When policymakers give entrepreneurs the space to act during crises, entrepreneurs can not only provide the goods and services that individuals need but also help create more resilient communities. Indeed, government actions are critical in either supporting, or undermining, entrepreneurial recovery efforts (see Haeffele & Storr, 2020b).

This paper applies the key functions of entrepreneurs identified in disaster recovery research to the unique and challenging context of the COVID-19 pandemic, particularly within the context of the United States. It then focuses on the ways that

² An exception is Maritz et al. (2020), which looks at the role of entrepreneurship during the pandemic in Australia. They argue that entrepreneurs have been catalysts for growth and innovation even in these challenging and uncertain times, dubbing them the “unsung hero” of the crisis. And Shepherd and Williams (2020) explore entrepreneurship and conclude that it can both equilibrate and disequilibrate adversity in the context of COVID-19.

³ Examples of these internet-based mutual aid societies and their descriptions can be found at <https://www.mutual-aid.co.uk/> and <https://www.usacovidmutualaid.org/about>.

legal institutions and policies can encourage, or hinder, entrepreneurship during pandemics. Institutions, especially legal institutions, shape the incentives and constraints that entrepreneurs face (see Sobel & Leeson, 2007; Leeson & Boettke, 2009; Chowdhury et al., 2015; Lofthouse, 2019). Like with other crises, responding to and recovering from the COVID-19 pandemic will require a multifaceted set of entrepreneurial ideas and solutions, and a policy environment that encourages rather than stifles socially productive entrepreneurship. By better understanding the functions of entrepreneurs during pandemics and the effects of formal and informal institutions on pandemic entrepreneurs, policymakers and communities can be better prepared for the next pandemic.

The paper proceeds as follows. In Sect. 2, we first explore the theoretical role of commercial and social entrepreneurs, discuss the existing research on entrepreneurship as it relates to disaster recovery, and advance five propositions about entrepreneurship during pandemics. In Sect. 3, we apply this theoretical framework to the COVID-19 pandemic and examine several policy prescriptions that could facilitate socially productive entrepreneurship to help with the COVID-19 pandemic as well as discuss some of the particular policies that have hampered entrepreneurial activity. Then Sect. 4 concludes with implications of this research.

2 Entrepreneurship during and after crises

Entrepreneurs are individuals who recognize and act on opportunities to promote social change.⁴ Entrepreneurship, broadly defined, is the means by which progress, and economic and social change, occurs (Boettke & Coyne, 2006; Storr et al., 2015). It is the act of adapting old and finding new processes, identifying or creating new goods and services or new ways to using old ones, and advancing new ideas and ways of viewing the world. When crises—like natural disasters, recessions, or pandemics—occur, entrepreneurship is an important factor in determining if and how individuals and communities respond and rebound.

As the drivers of social change, entrepreneurs are not a specific subset of people; instead, entrepreneurship is a course of action available to anyone. Entrepreneurship can take many forms, but two forms are critical for responding to crises: commercial and social. Commercial entrepreneurs pursue profits within a market context, such as small business owners or the managers within a mid-sized or large firm. Social

⁴ There are many competing definitions of “entrepreneurs” and “entrepreneurship.” For our purposes in this paper, we are working within the broadest conceptions of entrepreneurship in the Austrian tradition. While economists most often focus on market entrepreneurs, who are alert to arbitrage opportunities and are incentivized and disciplined by property, prices, and profit/loss, there are other types of entrepreneurs who are alert to opportunities for social change that occur outside a market context. Other types of entrepreneurship include social entrepreneurs, ideological entrepreneurs, political entrepreneurs, etc. These other types of entrepreneurs have similar social functions, but they operate with different (or less precise) incentives, constraints, and feedback mechanisms (such as reputation) when compared to market entrepreneurs. Despite these differences, the unifying factor among all entrepreneurs is that they recognize and act on opportunities to promote social change (Storr et al. forthcoming).

entrepreneurs have been characterized as entrepreneurs with a social mission or those who adapt existing or establish new social enterprises (see Mort et al., 2003; Alvord et al., 2004; Storr et al., 2015; Haeffele & Storr, 2019). The goal of social entrepreneurs is to solve a social problem, often outside the realm of rational economic calculation. Examples of social entrepreneurs include leaders and innovators in churches, neighborhood associations, and other civil society groups.

While these various forms of entrepreneurs operate in different settings, face different types of incentives, and receive different kinds of feedback, they all can provide support and perform important functions during and after crises. Moreover, despite key differences between commercial and social entrepreneurs, the distinctions between them are often less stark and their similarities more significant than theory may suggest (Storr et al., 2015). For example, while prices and profit and loss are strong indicators for commercial entrepreneurs, they often still must be interpreted and understood within their social context. In times of crisis, commercial and social entrepreneurs fill three important roles: (a) providing needed goods and services; (b) reconstituting dispersed or creating new social networks; and (c) signaling a commitment to recovery (*ibid.*). For instance, churches and synagogues provide immediate shelter, warm meals, and spaces to commune and share information. Perhaps surprisingly, so do coffee shops and grocery stores and boutiques. Neighborhood associations and nonprofits can connect with dispersed community members, disseminate information, and rally together their neighbors. Community leaders—whether business owners, presidents of homeowners’ associations, or school administrators—can signal a commitment to their community and a determination to rebuild. By doing so, they lower the costs and raise the benefits of recovery for their neighbors, making it more likely that others will also commit to rebound (*ibid.*).

In many cases, commercial and social entrepreneurs are particularly effective at driving disaster response and recovery because they are often embedded within their particular community (Grube & Storr, 2018; McKeever et al., 2015; Tedeschi & Calhoun, 2004; Welter, 2011; Zahra et al., 2008). In other words, local commercial and social entrepreneurs often have the on-the-ground knowledge and incentive to be alert to and take advantage of opportunities for social change because they are embedded in specific communities with unique and culturally specific individual and collective needs. Effective local entrepreneurs are able to identify and then take action to satisfy the needs of their community because of their connection to their community and their ability to leverage their social ties and networks (Grube & Storr, 2018). This connection to, or embeddedness within, their community makes undertaking recovery more likely because they value rebuilding their current home over starting new elsewhere and they can utilize their networks or social capital to navigate the challenging and uncertain post-disaster landscape. Being embedded in a local community also gives entrepreneurs access to local and tacit knowledge that outsiders simply cannot tap into. Entrepreneurs even fulfil these roles in hostile environments and against extreme adversity (Bullough et al., 2014; Grube & Storr, 2018; Shepherd & Williams, 2020); meaning that entrepreneurship can and does occur even in the most challenging circumstances.

Similar to other disaster situations, entrepreneurship is likely to be critical during a pandemic. We suggest five propositions regarding the role of entrepreneurship in

helping communities cope with the challenges of a pandemic: (1) entrepreneurs provide goods we need to survive and combat the pandemic; (2) entrepreneurs provide services that we need to stay connected during a pandemic; (3) entrepreneurs are often a source of charity and leadership during a pandemic; (4) despite the key functions they perform, entrepreneurs are also often hampered by both the pandemic and pandemic responses; and (5) entrepreneurs need a legal regime that gives them space to act during a pandemic.⁵

Proposition 1 *Entrepreneurs provide goods we need to survive and combat the pandemic.*

The need for everyday items does not cease because a contagious virus is threatening the population. During pandemics, entrepreneurs will continue to provide goods that we need to survive in mundane times as well as in times of crisis, such as water, food, clothing, and shelter. Also, importantly, entrepreneurs during a pandemic will fulfil the critical role of providing goods that we need to combat the pandemic like personal protective equipment (PPE), therapeutics, and vaccines. Large and small grocery stores, drug stores, department stores, hardware stores, and their suppliers will find ways to continue to offer their customers these goods despite there being an ongoing pandemic. Nonprofits will offer food, and rental assistance, and other needed resources, as well as health services to those in need. Existing commercial and social enterprises will adapt and expand their offerings during the pandemic to more closely satisfy pandemic-related demand. New enterprises will be created by entrepreneurs during a pandemic to fill needs, offering products and services that were hitherto unneeded or unavailable.

The efforts of entrepreneurs during similarly significant crises give us reason to believe that entrepreneurs will perform these functions during a pandemic. Indeed, because they can access local knowledge, and are alert to the changing needs of their communities, local commercial and social entrepreneurs are well positioned to provide the goods and services that community members need. Entrepreneurs can also initiate charitable efforts to aid their communities after crises and connect suppliers of aid to those who needed it most. Linnenluecke and McKnight (2017) argue that, in the wake of disasters, firms activate latent structures to expand existing operations, engage in improvisation, and create new organizational arrangements as they help with community-wide recovery. Similarly, Storr et al. (2015) describe how after Hurricanes Katrina and Sandy commercial and social entrepreneurs provided everything from basic food items to security for neighborhoods to construction services for rebuilding. Likewise, they discuss how community members flocked to churches, synagogues, and community centers after those hurricanes to both volunteer and receive aid (ibid.). After the 1994 earthquake in Northridge, California, social entrepreneurs set up

⁵ Several of these points were first made in a Mercatus Policy Brief and posts at *The Vienna Circle* for the Mercatus Center at George Mason University (Haeffele et al., 2020b; Haeffele et al., 2020a). This paper expands on the ideas from those pieces.

non-governmental organizations to provide support for vulnerable populations. These entrepreneurs also pushed to establish affordable housing for low-income individuals, Latinos, and farm workers (Bolin & Stafford, 1998). Additionally, Skarbek (2014) explains that disaster relief after the Chicago Fire of 1871 was largely provided by voluntary associations with charitable donations coming from businesspeople. In the Rockaway peninsula in New York after Hurricane Sandy, the Orthodox Jewish population started receiving donations of supplies and money. To best distribute and utilize these donations, a local rabbi created a spreadsheet with the pressing needs of their neighbors and a nonprofit organized a fund to funnel monetary donations and instituted a system for quickly assessing need and distributing funds for quick repairs, replacing appliances, and rebuilding homes (Storr et al., 2017).

In the context of an ongoing pandemic, then, we should, expect entrepreneurs to find novel ways to provide essential goods and services, to fulfill increased demand for items that are particularly important during a pandemic, and to invent new products that assist in surviving, managing, and stopping the spread of the disease. For instance, digital retailers might expand their operations as customers not only turn to them to satisfy basic needs but also to make their homes more comfortable for sustained periods of isolation. Restaurants may find ways to continue serving meals but might also leverage their relationships with wholesalers to help customers when there are shortages of key items at grocery stores. Restaurant owners might also give away food, residents might make masks for essential workers, and mutual aid societies might form online communities to connect volunteers with vulnerable populations. Manufacturers might shift their production toward goods that are more desirable during a pandemic, like alcoholic beverage manufacturers shifting to produce hand sanitizer. Cleaning services might offer more thorough or more frequent cleanings to clients. Businesses, religious organizations, and schools might adapt to accommodate physical distancing or implement new hygiene practices in order to continue their operations. And nonprofits might shift their activities or create new programs to help community members with various needs like paying their rent or feeding children whose parents are out of work as a result of the pandemic or who normally relied on school meals for sustenance.

Proposition 2 *Entrepreneurs provide services that we need to stay connected during a pandemic.*

Pandemics and some of the associated public health responses, such as stay-at-home orders and lockdowns, disrupt workspaces and social networks. While remote work is, of course, possible for many jobs, offices exist because they promote professionalism, productivity, creativity, and collaboration. If remote work is to be effective, enterprises must find ways for their employees to collaborate and to be productive despite not being able to physically interact. Additionally, social networks are critical in helping individuals and communities cope with and recover from crises. Being unable to connect during a crisis could, thus, hamper the community's response and recovery.

Given the importance of staying connected during a pandemic, we should expect that entrepreneurs will provide services that facilitate communication despite the disruptions associated with stay-at-home orders, lockdowns, and the other public health responses to the pandemic. That entrepreneurs provided services that facilitated connection and that they leveraged existing systems of communication to repair and strengthen disrupted social networks during and after crises like natural disasters suggests that they are likely to do the same during a pandemic. After Hurricanes Katrina and Sandy, for instance, entrepreneurs were able to use existing communication platforms to get in touch with dispersed neighbors to share information and coordinate recovery efforts (Storr et al., 2015). Entrepreneurs also created and provided social spaces where people gathered, shared information, and supported one another. Indeed, in the wake of Hurricane Katrina, churches, coffee shops, and grocery stores became spaces for residents to not only get a hot cup of coffee or charge their phone but also to commiserate about their troubles and share rebuilding strategies (Chamlee-Wright & Storr, 2014).

In the context of a pandemic, we should expect entrepreneurs to develop new or adapt existing technologies as well as offer communication services that allow individuals to connect and communicate with each other despite there being limits on face-to-face in-person interactions. This might include creating space for online interaction (e.g., through video-conferencing technologies like Zoom or Google Meet). This might include facilitating remote work by creating new or leveraging existing digital communication and database platforms. This might involve offering educational opportunities through various digital media. Medical experts and journalists might also use existing technology to communicate information about the disease and how to respond to it. Religious and other community leaders might figure out ways to communicate their messages to community members who must remain at home and might develop strategies for keeping their members connected despite the challenges around gathering. Together, these efforts will keep families, co-workers, and community members connected.

Proposition 3 *Entrepreneurs are often a source of community support and leadership during a pandemic.*

It is, arguably, the actions of entrepreneurs that signal that a community can and likely will rebound after a crisis. For instance, after Hurricane Katrina, residents in the Lower Ninth Ward of New Orleans commented on the confidence in recovery that they gained from the reopening of a local gas station and convenience store (Storr et al., 2015). Likewise, a superintendent in St. Bernard Parish pushed for schools to reopen quickly after the storm in order for parents to be able to return and rebuild their lives (ibid.). Also, Father Vien of the Vietnamese American community encouraged his displaced parishioners, who had evacuated to different locales, to return and rebuild their homes (ibid.). Community leaders, business owners, pastors, nonprofit leaders, or in some cases political officials, can be exemplars for how to adjust during and after a crisis and can also advocate for their communities. Furthermore, entrepreneurs can also amplify collective

narratives that shape the recovery strategies that community members adopt after disasters (Chamlee-Wright & Storr, 2011).

During a pandemic, we should expect entrepreneurs to act as focal points, by providing leadership at a time of extreme uncertainty and signaling that their communities are likely to survive the current crisis. The reopening of key businesses and organizations would likely provide a sense of normalcy and resilience to communities that have spent months in isolation, even when there is still much loss and uncertainty.

Proposition 4 *Despite the key functions they perform, entrepreneurs are often also hampered by the pandemic.*

Entrepreneurship is unavoidably affected by the institutional rules that shape private and public spheres. Formal and informal institutions that govern social action largely determine the incentives and constraints that entrepreneurs face. Institutions can sometimes create barriers or raise costs to the various forms of entrepreneurship. “Entrepreneurs do not act in a vacuum;” laws and policies provide a framework that guides activity (Boettke & Coyne, 2006, 121).

Further, good policies have the capacity to mitigate uncertainty and define the rules of the game such that the actions of others are more predictable, and poorly designed or implemented policies can hinder entrepreneurial action and stymie effective responses to crises (Boettke & Coyne, 2006; Storr et al., 2015). For instance, after hurricanes, occupational licensing often restricts the supply of contractors, health professionals, and emergency personnel in the affected location. However, relaxing occupational licensing rules may not raise the risk of safety issues or fraud, like those who favor licensing predict (Skarbek, 2008). In other words, the institutional context shapes how entrepreneurs will direct their attention (Baumol, 1990; Boettke et al., 2008; North, 1990; Sobel, 2008).

Of course, a pandemic itself raises transaction costs to exchange, but public policies attempting to address the pandemic can also raise transaction costs, making it more difficult for entrepreneurs to fulfill their social purposes. Public health policies that raise the costs to productive entrepreneurship or impose other barriers hamper the ability of entrepreneurs to provide necessary goods, services, charity, and leadership. For instance, in order to reduce the spread of COVID-19, various governments imposed stay-at-home orders and mandates that determined which activities and businesses were essential and which should be suspended. These designations reduced or even ceased certain activities and created disruptions in supply chains (Storr et al., 2021a). While these designations may have stemmed the spread of the virus, they also may have restricted activity that could have benefits for society.

Although public policies have the potential to impede entrepreneurs from discovering and implementing solutions to the problems related to crises, public policymakers can also play a helpful role. The disaster recovery literature, for instance, is full of examples of public policies that aided communities in recovering effectively and efficiently. There are, unfortunately, also plenty of examples

where public policies exacerbated existing problems, created perverse incentives, and obfuscated the communication of important knowledge (see Storr et al., 2015). Thus, a robust response to crises like pandemics will undoubtedly involve government action and an effective public policy response, but those policies must be carefully crafted to avoid having more costs than benefits. Most likely, a viable long-term solution will involve a combination of markets, government, and civil society.

Proposition 5 *Entrepreneurs need a legal regime that gives them space to act during a pandemic.*

The legal regime establishes the rules for social interaction and coordination. Certain institutional structures are more conducive to economic development because they tend to facilitate mutually beneficial exchange, entrepreneurship, and innovation. Such a regime includes defining and enforcing private property and contracts as well as establishing mechanisms for settling disputes (García-Posada & Mora-Sanguinetti, 2015). If institutions hinder socially beneficial entrepreneurship, however, people are likely to act in socially wasteful ways (Baumol, 1990; Choi & Storr, 2019; Kirzner, 1985; North, 1990).

Establishing a predictable policy environment allows for entrepreneurs to act even in uncertain, hostile environments. Unpredictable or shifting policies, on the other hand, can add noise to the signals that entrepreneurs rely on, altering prices, profit and loss, and other mechanisms, such as reputation, that are used to coordinate action (Chamlee-Wright, 2007). For instance, New Orleans released several plans for redeveloping the city after Hurricane Katrina, with each one creating new challenges for residents to adapt to. Indeed, early plans shifted efforts from rebuilding to proving viability for many communities, and likely slowed recovery (Storr et al., 2015).

It is also worth noting that government can hamper economic development if government actors become predatory or if government actors create environments where others can become predatory. Thus, government power must have effective constitutional constraints that both empower government actors to provide for the protection of property rights and the provision of public goods, while also constraining the ability of government actors or well-connected individuals to predate on others through rent seeking and redistribution (Boettke, 2018; Buchanan, 1975; North, 1981).

In the context of the pandemic, shifting and uncertain policies would add costs to entrepreneurial action and may even incentivize efforts that lead to more harm than good.

3 Entrepreneurship during the COVID-19 pandemic

In the context of the COVID-19 pandemic, entrepreneurs already have been and will continue to play a critical role in helping communities combat the crisis. Specifically, entrepreneurs have provided a way for individuals and communities to cope

with unprecedented and unpredictable situations by providing necessary goods and services as well as charity and leadership.⁶

3.1 Entrepreneurs provide goods needed to survive and combat the COVID-19 pandemic

During the COVID-19 pandemic, businesses, nonprofits, and community organizations are being challenged to find ways to continue to provide their customers with demanded goods while following rules that ensure physical distancing and restrict certain activities. They are also confronted with trying to figure out ways to help others adapt to the challenges associated with maintaining physical distance as well as attempting to solve pressing problems, including the scarcity of medical equipment, PPE, testing kits, medications, vaccines, and other essential goods.

Since the onset of the pandemic, entrepreneurs have designed no-touch door openers, self-cleaning silicone masks, doorknob sleeves, smart mirrors that demonstrate proper handwashing, and sanitizing robots for airports and hospitals (Sachan, 2020). These developments have made it easier for people to interact with one another while also maintaining hygiene and safety practices. Similarly, digital technology has assisted in pandemic planning, testing, and contact tracing efforts. Data dashboards, online resource centers, digital thermometers, phone apps, and telemedicine platforms are all innovations that help mitigate the negative effects of the pandemic (Whitlaw et al., 2020). The Pfizer/BioNTech and Moderna vaccinations are also the product of technological progress, being the first vaccines to use mRNA (Komaroff, 2020).

Additionally, businesses have modified their manufacturing facilities and supply chains to produce necessary medical and cleaning supplies. Breweries and distilleries shifted to making hand sanitizer, tennis shoe companies started turning their sneakers into face shields for healthcare workers, appliance manufacturers begun making ventilators instead of vacuums, and fashion designers switched to making PPE for frontline healthcare workers (Bashir, 2020; Holland & Pellerin, 2020; Nike Inc., 2020; Pomranz, 2020). The prevalence of masks and face covering options has rapidly expanded over the past several months, with clear masks to aid in lip-reading by the deaf, inserts that ease breathing and even protect lipstick, and chains for masking or demasking quickly throughout the day. These products have been provided by existing businesses shifting their business models to provide currently

⁶ The examples presented in this section are of entrepreneurial successes. We do not present entrepreneurial failures. We acknowledge the failure of many entrepreneurial endeavors in the market and in civil society. These failures do not undermine our analysis. Failures are an integral part of entrepreneurial processes. However, while entrepreneurs undoubtedly learn from their own and others past failures, only the successes (directly) help solve the problems related to crises. This is why we have chosen to focus on those. In the market, many entrepreneurial actions incur losses, which are important feedback mechanisms that communicate how resources should be reallocated in more highly valued ways. Profits communicate to market entrepreneurs that their actions are fulfilling human wants and desires and provide an incentive for entrepreneurs to continue fulfilling those wants and desires. Social entrepreneurs, however, have less clear feedback mechanisms than profit and loss, which are often context dependent.

demanded goods as well as by emerging entrepreneurs who have designed new products targeted toward the needs of a population living in a prolonged pandemic.

Advancement in contactless delivery via Doordash, Lieferando, Uber, Just Eat, Instacart, Amazon, GrubHub, etc., and local vendors has also occurred, making it easier to coordinate at a distance and provide goods to high-risk populations. Further, there are now several alternatives for products that were scarce on grocery store shelves. For instance, local restaurants provided needed supplies—like toilet paper, cleaning products, and staple foods such as eggs—from their wholesale suppliers that consumers could purchase along with their more traditional takeout or delivery options (Signorini, 2020). Customers are also turning to local community-supported agriculture cooperatives (CSAs) for fresh produce deliveries (Danovich, 2020). These innovations have made it easier for individuals to purchase the goods they need while remaining physically distant. In an online survey we conducted in August 2020, 78% of respondents used pick-up, delivery, or mail order to get groceries, food, medication, and other supplies during the pandemic.⁷

Nonprofits have also stepped in to provide goods. For instance, Operation BBQ Relief (2020), a disaster relief organization that was formed after the 2011 Joplin Tornado, launched a new program called Operation Restaurant Relief. This initiative revives closed restaurants in Kansas City, Missouri, by utilizing their kitchens to provide free meals to essential workers and others in need. And in North Carolina, a private foundation called The Duke Endowment provided emergency grants to rural churches throughout the state (Gray, 2020). Some of these rural churches are using their emergency grants to pay local restaurants to provide meals to their congregation and the greater community.

Since the onset of the pandemic, distilleries are pulling together funds to support local bars and restaurants and their employees (Pomranz, 2020). Established nonprofits such as Meals on Wheels as well as newer organizations, like Washington, D.C.-based chef José Andrés's World Central Kitchen, have increased existing or created new programs to deliver meals to the elderly, poor, and, importantly, to children unable to eat through school lunch programs (Gregory, 2020). In our online survey, 23% of respondents said they received assistance from individuals, groups, or organizations during the pandemic. They reported receiving financial resources, housing, goods and services, connection, educational and job opportunities, and help navigating government assistance from family, friends, nonprofits, and religious organizations. Many respondents also mentioned providing assistance to others, with 46% having donated time, money, blood or plasma, or needed items, and 33% having made homemade masks and face coverings for themselves and others. These programs and individual actions are able to provide support even when government programs and stimulus funding is delayed.

⁷ The survey, administered through Qualtrics, targeted United States residents over 18 years old and asked a series of questions about pandemic-related community connected, regulations and policies, and changes to work and education. We received 1105 total responses and used 967 for our analysis (removing those that included multiple nonsensical answers). The sample was fairly diverse with fairly even distribution across regions (with less respondents living on the west coast), age, gender, education, employment, and marital status. However, the population was predominantly white (75%).

3.2 Entrepreneurs provide services needed to stay healthy, productive, and connected to others

While the practice of physical distancing is limiting people's ability to physically gather and interact with one another in person, entrepreneurs are finding creative ways to maintain and foster connectedness and community while still being physically apart. They are able to do this by leveraging social ties and networks and creating new social spaces that help overcome uncertainty and isolation (Chamlee-Wright & Storr, 2014; Grube & Storr, 2018; Storr et al., 2015). Social capital can be used to find financial or housing support, locate resources, and acquire information related to the pandemic (such as the positive infection status of someone living in one's neighborhood). Shared activities can provide a sense of community, opportunities for discussion, and ways to maintain and even grow social ties (Storr et al., 2021b).

Evidence from past disasters suggests that technology facilitates locally relevant information sharing, builds community resources, and brings people together (Shklovski et al., 2008). During COVID-19, 13% of survey respondents from our August 2020 online survey indicated joining new organizations since the pandemic began, and 26% said they joined new online groups. When asked what types of groups they joined, they listed charitable organizations (like Meals on Wheels and the Red Cross), activist groups (such as Black Lives Matter), education programs, parental groups, support groups, dating sites, job boards, and hobby groups. Respondents joined such groups for connection over shared experiences and interests, and to learn about new opportunities and strategies for coping and surviving the pandemic.

Indeed, innovations in online platforms have made widescale physical distancing possible. For example, platforms—such as Zoom, Webex, and Google Meet—have allowed musicians, businesspeople, politicians, teachers, and fitness instructors to adapt to presenting and engaging their customers and constituents online. Usage of voice, videoconferencing, and messaging apps have spiked as communities leverage online tools to stay connected. Discord, a communication app used primarily by gamers, hit a new peak of 100 million monthly active users in 2020, up from 56 million in 2019 (Curry, 2020). The Zoom videoconferencing app's daily meeting participant numbers went from 10 million in December 2019 to over 300 million in April 2020. Usage of Microsoft Teams quadrupled since November 2019 and usage of Cisco's Webex tripled year-over-year (Narcisi & Alspach, 2020). Additionally, several major technology companies such as Cisco, Google, Facebook, Apple, and Amazon are donating resources to healthcare and educational efforts and expanding free access to their products and customer service programs (Moorhead, 2020).

Online platforms also facilitate the creation and use of social networks. Individuals can start fundraisers for the unemployed on GoFundMe or create a platform for connecting potential donors directly to those in need, like the Virtual Tip Jar (Gowri, 2020). Furthermore, online platforms can connect new buyers to sellers who have excess supply. For example, a woman posted on social media asking her followers to help an egg farm in Pennsylvania facing decreased demand, encouraging them to buy cheap eggs, help a local farmer, and save free-range chickens from euthanasia (Krajcsik, 2020). Mutual aid societies, called "groupsourcing" in the online environment, have also emerged to better facilitate this type of support (Chamberlain, 2020;

Storr et al., 2021b). For instance, COVID-19 Mutual Aid UK provides a list of over 2,000 groups, including the bluebell-19 Facebook group in Cambridgeshire that connects more vulnerable populations with volunteers who run errands and provide emotional support.⁸ COVID Mutual Aid USA is a similar distribution list that also provides information and suggestions on creating mutual aid societies.⁹

Additionally, churches are bringing their services online, gyms are offering virtual classes, and colleagues are turning to virtual happy hours to network, share stories, and vent frustrations. Travel platforms, like Airbnb and Atlas Obscura, now provide online seminars, entertainment, and courses. In addition to providing virtual concerts, museum tours, and other experiences, artists are also encouraging others to engage with art. For instance, famous cellist Yo-Yo Ma shared his own recordings and started an online campaign to encourage others to share songs of comfort (PBS, 2020). Additionally, dating apps innovated by providing in-app messaging about health and safety precaution, facilitating videoconferencing (including suggestions for physically distant meetups), and allowing users to indicate their comfort level with physical proximity on their profiles. Match Group, which owns 45 dating brands, saw a 15% increase in new subscribers in the 2nd quarter of 2020 (Link, 2021). These services aim at providing a sense of normalcy to such a prolonged crisis, going beyond just essential goods to providing more enrichment activities for a population spending more time at home.

3.3 Entrepreneurs are a source of community support and leadership that provide needed charitable functions and promote institutional stability

The uncertainty that surrounds crises is profound, and entrepreneurs help individuals and groups navigate this uncertainty by providing support and leadership. Furthermore, one of the most important functions that entrepreneurs perform during a crisis is that they can signal a commitment to recovery and resilience. The successful opening of one business or organization, even with new protocols and safety precautions, can demonstrate to others that pandemic-related barriers are surmountable and signal that recovery is likely. Seeing a neighbor distributing food or masks can help others cope with fear and uncertainty. For example, during the pandemic, community members have leveraged Nextdoor and other neighborhood-level platforms to coordinate aid and provide support, coordinating food drives and deliveries for homebound neighbors, and drawing awareness to struggling local businesses (Toliver, 2020). Community platforms continue to allow neighbors to express local needs (such as food, childcare, or essential goods) and supply resources to meet them.

Reopening schools are also signals of hope, especially when incorporating lessons learned from abroad (Couzin-Frankel et al., 2020). Yet even when schools continue to use online or hybrid strategies, parents have found innovative ways to tackle childcare, education, and work responsibilities through the creation of “pods”

⁸ For more information, see <https://www.mutual-aid.co.uk/> and <https://www.facebook.com/groups/235056557676023>.

⁹ For more information, see <https://www.usacovidmutualaid.org/about>.

or “bubbles,” that allow parents to share the responsibilities of childcare and supplement learning while also getting time to focus on work or other obligations (Garcia-Navarro & Lichfield, 2020; Storr et al., 2021b). These adaptations can signal commitment to community and ease the burdens of social coordination in an extended pandemic.

3.4 Entrepreneurs are also hampered by the COVID-19 pandemic

Despite the emphasis on government-led response and recovery efforts, past disasters have shown that governments may fail to adequately understand the extent of the crisis and mobilize resources (Haeffele & Storr, 2020b). It is structurally difficult for bureaucracies to reorganize and deploy national social services to account for these quickly changing circumstances (Abutaleb et al., 2020). For instance, providing testing and medical supplies, providing seniors and schoolchildren meals in their homes, moving in-person processes online, and coordinating the administration of unemployment claims and stimulus disbursements can be bogged down with politics and red tape and overwhelmed by increased demand. By contrast, entrepreneurs see these coordination problems as opportunities for change and are more able to adapt to shifting needs and circumstances. In order to facilitate entrepreneurial responses to the COVID-19 pandemic, policymakers must give entrepreneurs the space to experiment with solutions to emerging problems. This means that removing barriers to entrepreneurial activity should be at the top of the policy agenda.

Policymakers have often exempted “essential” goods and services from the restrictive policies that they have adopted in response to COVID-19. It is, however, difficult and perhaps impossible to predict which entrepreneurial efforts will be essential as the crisis evolves (Storr et al., 2021a). Indeed, it is unclear that even just a few months ago people would have considered certain items and services more than mere conveniences. Delivery services and video conferencing technologies, for instance, are proving to be essential services while society is maintaining physical distance. Some restrictions, however, are making it difficult to purchase furniture and equipment that could better facilitate physical distancing due to disrupted supply chains and mandates for certain types of businesses to close (Peterson, 2020).

Many companies and industries that may not be vitally important have shifted to producing medical and cleaning supplies crucial to response efforts. A particularly unexpected example is the increased demand in portable bidet attachments in the U.S. in response to widespread toilet paper shortages (Roberts, 2020). Months after shortages and hoarding behavior made headlines, some stores still had one-item-per-person-per-day restrictions on goods like toilet-paper and cleaning supplies. While such policies are meant to distribute scarce goods more equitably, they can also increase the risk of exposure by forcing individuals to return to the store multiple times when they would otherwise have retrieved months of supplies in one trip (Stauffer, 2020). Arguably, that it is difficult to predict which goods and services will be essential might mean that policymakers should presume that a business is performing an essential service until proven otherwise and should adjust policies when unlikely operations are revealed to be important (Storr et al., 2021a).

Additionally, many of the regulations on and restrictions of entrepreneurship during regular times can prove particularly costly during and after a crisis. Policymakers should consider waiving, and in some cases have waived, licensing fees and licensure requirements and grant out-of-state temporary licenses to make it easier for medical professionals to cross state lines or come out of retirement, and for military personnel to administer care to civilians (Bayne et al., 2020; Skarbek, 2008). Relaxing state certificate-of-need laws, expanding the scope of practice for physician assistants and nurse practitioners, and removing restrictions on telemedicine will also allow hospitals to increase and improve services (Mitchell, 2020). Similarly, delivery services have quickly become an essential service for people to receive needed food and supplies. Relaxing regulations on delivery technologies, labor policies, and state food and alcohol restrictions would further enable this industry to respond to the needs of its customers (Griswold & Salmon, 2020a; Skorup & Haaland, 2020).

Recent developments in U.S. immigration policy have also threatened to dampen entrepreneurship. An Immigration and Customs Enforcement (ICE) Rule barring international students from taking classes online in the U.S. sent shockwaves through the academic community in the summer of 2020. Regulatory uncertainty in the wake of the rule led to legal challenges and local strife for students wondering whether they should change universities, renew leases, find a flight home, or switch into in-person classes despite the higher risk of exposure to the disease. Were that rule to stay in effect, the visa status of over one million international students would have been compromised (Griswold & Salmon, 2020b). Fortunately, the rule was quickly rescinded after dozens of legal challenges from universities. These students contribute \$44.7 billion to the U.S. economy and bring diverse skills and entrepreneurial attitudes to the US labor force. Importantly for our purposes here, 22% of billion-dollar startups in the U.S. have at least one immigrant founder who benefited from a student visa (ibid.).

3.5 Uncertain and costly legal regimes can impede entrepreneurship

In order for entrepreneurship to fulfil the changing demands of society, there must be a stable legal regime that defines and protects private property and contracts and allows for arbitration when disputes arise. However, in times of crisis, there are often policies that restrict the use of private property (such as by designating what businesses and activities are essential or not) in addition to increasing the costs of entrepreneurial action through confusing and changing policies.

Arguably, amidst such uncertainty, policymakers should focus on reducing the signal noise of confusing and contradictory policies and on setting clear guidelines for entrepreneurial activity (Chamlee-Wright, 2007). At the federal level, regulatory agencies should provide clear guidelines on what individuals and manufacturers can do to help meet medical supply needs and what labs can do regarding testing, approving, and producing needed medical devices and virus test kits. Some of this guidance is, of course, already occurring. For example, the U.S. Food and Drug Administration (FDA) eventually allowed commercial manufacturers and private and university labs to produce coronavirus tests and has moved regulatory oversight

to the states, rather than continuing to rely on the CDC as the single source of tests (Stapp, 2020).

Furthermore, the U.S. Small Business Administration's (SBA) loan program proved confusing for applicants and lead to unintended consequences. Business owners with preexisting loan relationships with banks participating in the program were often more successful applying to and receiving funding than businesses with no prior experience. The first allotment of Paycheck Protection Program (PPP) money ran out in 13 days, the second round lasted less than a week. While three quarters of small businesses applied in the first round, only 20% received money (NFIB, 2020). Early evidence shows that PPP funds flowed to areas that did not face major declines in hours worked or business shutdowns (Granja et al., 2020). Because the PPP relied on a "first come, first serve" model, self-employed people who were not allowed to apply until the second week of the application period never got a chance to receive funding from the already maxed out program. The SBA program also lacked application criterion to assess the needs of applicants and make decisions based on the most pressing economic constrains. For instance, many retail storefronts had enough capital to keep staff on payroll but had little or no work for them to do, whereas other businesses had pressing cash flow problems.

Critically, policymakers should be as clear as possible about procedures for relief, and when they plan to relax the restrictions that they have imposed in response to the pandemic, and the metrics that they will be using to determine their course of action. Policymakers should also be transparent about what they will do and what they will not do. Offering false hope that there will be a return to normalcy sooner than is likely or promising help that is unlikely to be forthcoming can paralyze entrepreneurs or push them to pursue strategies that are ill advised and unsustainable. Entrepreneurs can only plan in an uncertain world if the guideposts they are relying on to help them navigate that uncertainty are consistent and reliable.

Another example of costly bureaucratic uncertainty was the tension between the FDA and distilleries over hand sanitizer. During the early part of the COVID-19 pandemic, many entrepreneurs in the distillery industry shifted their production from making drinkable spirits to hand sanitizer to address the short supply. Although the FDA gave many distilleries emergency authorization to make hand sanitizer, on December 29, 2020, the FDA began requiring that distillers pay \$14,000 fees for making it (Federal Register, 2020). Tom Burkleaux of New Deal Distillery in Portland, Oregon, said, "They gave us emergency authorization to do it and just to be safe. We assumed one day they would take away the emergency stuff, but out of the blue, with two-days notice, we were told we would have to pay \$14,000 if we were going to continue making hand sanitizer" (Mechanic, 2021). On January 6, 2021, the FDA stopped pursuing the \$14,000 fees because they "lacked the delegated authority" to collect the fees and the Department of Health and Human Services ordered the FDA to cease further collection efforts (Federal Register, 2021). Burkleaux also said, "If they had not backed off, we would have been really angry because it may have been the difference from some people keeping their doors open or not" (Mechanic, 2021). Such action on the part of the FDA causes uncertainty for entrepreneurs, and in the next crisis, some entrepreneurs may be less likely to take action. As such, both the entrepreneurs and the people who would benefit from their goods and services are made worse off.

The incentives caused by an uncertain legal environment can hamper entrepreneurs from fulfilling their social function. Such policies confuse the signals that entrepreneurs rely on, changing the costs of production, clouding profit and loss mechanisms, and even damaging the reputation of entrepreneurs who seek to provide goods, services, and assistance to their community. Instead, a stable legal regime can increase the likelihood of entrepreneurial efforts and sustain recovery.

4 Conclusion

The research on disaster recovery provides a hopeful lesson as we cope with and ultimately recover from the COVID-19 pandemic, as does the current entrepreneurial activities happening in communities across the U.S., Europe, and the world. Entrepreneurs provide a way for individuals and communities to cope with unprecedented and unpredictable situations by providing the goods and services needed to stay healthy, productive, and connected to others during the pandemic. Additionally, entrepreneurs are a source of community support and leadership, provide charity, and promote institutional stability. Entrepreneurs have already helped ease the pain and challenges associated with the COVID-19 pandemic in these ways.

Despite their key role in sustaining communities during crises, entrepreneurs can, and have been, negatively impacted by policies aimed at curtailing the spread of COVID-19. This necessarily exacerbates the social and economic costs of the disease as well as the public health strategies used to combat it. Policymakers, however, can encourage recovery by refraining from strict definitions of essentiality, suspending or eliminating specific regulations, and by simplifying and clarifying policies that influence the entrepreneurial landscape.

Institutions, particularly legal institutions, affect the capabilities and effectiveness of entrepreneurs. There is an interconnectedness between legal institutions, various forms of entrepreneurship, and crisis recovery. In particular, this paper contributes to the literature on institutions and transaction costs (see Marciano, 2011; Candela & Geloso, 2019), and on crisis and entrepreneurship (see De Geest 1995; Harnay & Marciano, 2009; Heinemann, 2011; Fink & Wagner, 2013; Braunerhjelm et al., 2015; Chowdhury et al., 2015). Entrepreneurial action is shaped by the legal regime and informal norms that govern society, either by being encouraged by a stable legal system that protects private property and contracts or by being hampered through interventionist policies that can add uncertainty and confusion (see Sobel & Leeson, 2007; Leeson & Boettke, 2009; Chowdhury et al., 2015; Lofthouse, 2019). This is exacerbated in times of crisis, like the COVID-19 pandemic.

This research also points to other questions for additional research. To better understand how entrepreneurs adapted during pandemics, and how policies and the legal regime promote or hinder their efforts, more research should be conducted using both qualitative and quantitative methods. In-depth interviews could provide insights on the challenges and capabilities of entrepreneurs (such as Shepard & Williams, 2020). Quantitative assessments of the impact of various policies across countries would also shed light on the legal regimes that best encourage recovery. Another line of research could investigate the private–public partnerships that have

become so prevalent during the COVID-19 pandemic. Testing and vaccine development and distribution has faced support and pushback from government and is worth exploring. Lastly, future research could examine entrepreneurship in the post-pandemic context, when that occurs, which is likely to prove as critical as entrepreneurship during a pandemic.

Declarations

Conflict of interest The authors have no conflicts of interest to declare.

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