

THE POLITICAL ECONOMY OF COVID-19

by

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A Dissertation submitted in partial fulfillment of the requirements for the degree of  
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George Mason University, 2020

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## **DEDICATION**

This dissertation is dedicated to my loving fiancé, Eric, and my ever-present Nora.

## ACKNOWLEDGEMENTS

I would like to thank my family members, friends, mentors, and students, who have made this dissertation possible. My loving fiancé, Eric, gave endless support, care, and encouragement. He is my rock. My mother and stepfather, Wendy and Chris, never let me forget how proud they are of me. My father, Searle, taught me the dedication and commitment it takes to work hard, day in and day out. My sister, Ashleigh, and my brother, Mitchell, taught me what selfless love and true friendship is. My friends taught me to maintain a work-life balance and to celebrate the small moments. My dissertation committee, Virgil H. Storr, Peter J. Boettke, and Christopher Coyne, encouraged my research and acted as incredible role models in their positions as teachers and mentors. Virgil has been a constant and steady advisor who has sacrificed so much time and energy for me. My mentor from undergrad, Michael Clark, first introduced me to the world of economics and believed in me from day one. I would not be at this stage of my career without Virgil and Michael. Last, I thank my students, who inspire me daily to be a better teacher, mentor, and person. They make every second of my career worth it. There are of course so many others to thank, as I am beyond privileged to have such a huge network of family, friends, mentors, and students.

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## **ABSTRACT**

THE POLITICAL ECONOMY OF COVID-19

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This dissertation studies the COVID-19 pandemic broadly through the lens of political economy, focusing on the social, entrepreneurial, and political implications of the pandemic. The first chapter examines what has happened to commercial relationships and friendships throughout the COVID-19 pandemic. While many have discussed the toll the pandemic took on general friendships and relationships, none have discussed what happened to commercial friendships during the pandemic. The second chapter studies entrepreneurship during the COVID-19 pandemic. The entrepreneurship literature discusses many different types of crisis entrepreneurs, like natural disaster entrepreneurs and conflict entrepreneurs. This chapter situates and defines pandemic entrepreneurship within the broader crisis entrepreneurship literature. The last chapter applies the median voter theorem to the COVID-19 pandemic, particularly to US governors' mask mandates. It analyzes whether governors followed public health concerns or catered to voter preferences on mask mandates, when the two were in contention.

## INTRODUCTION

In January 2020, a virus began spreading throughout Wuhan, China, and eventually made its way through the rest of the world, leaving a damaging mark for years to come. This virus, of course, is SARS-CoV-2, the virus that causes COVID-19 (henceforth COVID-19). Over 6 million people have died from COVID-19 at the time of this writing in April 2022. For many, this has been a life-altering and tremendously difficult period. In the developed world, tens of millions of people lost their jobs (Bennet 2021).<sup>1</sup> Alcohol-related deaths in the US increased by 25% from 2019 to 2020 (White, Castle, Powell, et. al. 2022) and drug overdose-related deaths increased dramatically in both the US and Canada in Q1 and Q2 of 2020 (Imtiaz, Nafeh, Russell, et. al. 2021), evidence of what Anne Case and Nobel laureate Angus Deaton (2021) call ‘deaths of despair’. In developing countries, particularly India and parts of Africa and Latin America, COVID-19 caused enormous disruption. First, such countries faced huge case and death tolls, as the cost of social distancing was too big of a cost to incur (Wasdani and Prasad 2020). In India, striking a balance between managing the threat of COVID-19 and managing other health issues was difficult: more than 1 million children missed crucial vaccinations due to lockdown orders and tuberculosis now poses a significant threat in India; at the same time, India had over 400,000 daily COVID-19 cases in May

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<sup>1</sup> In the EU and the US combined, over 12 million people lost their jobs because of the pandemic.

2021 (Saxena 2020).<sup>2</sup> Additionally, developing countries were unable to dedicate large resources (both medical and economic) to fighting COVID-19, creating vast inequality in the ability to cope and recover between wealthy and poor nations (Brunnermeier 2021). Relatedly, developing countries are now struggling to catch up to their pre-pandemic GDP growth rates and may permanently fall behind the developed world, and are also accumulating massive private and public debts because of the crisis (Brunnermeier 2021). Besides this, these countries also faced decreased trade, tourism, and remittances, all extremely harmful to individual livelihoods (Princeton Economics 2020). This is all to say, COVID-19 affected the world in unpredictable and catastrophic ways, and it will likely continue affecting the lives of millions for decades to come.

As soon as the pandemic hit, many across the globe called for government intervention. Almost as quickly, there was an explosion of literature on the political economy of COVID-19. Many foresaw at the onset of the COVID-19 crisis that there would be inevitable entanglements between governments, societies, and economies across the globe, and that these entanglements were sure to create frictions and unintended consequences. For instance, Boettke and Powell (2021) argue that evidence from the COVID-19 pandemic should make us reconsider the benevolence and omniscience assumptions usually assumed in most of the economic and public health literature. Leeson and Thompson (2021), in surveying the public choice literature on public health, find that “[p]ublic health regulations often are driven by private interests,

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<sup>2</sup> It is well known now that the official estimates are likely much lower than the actual case and death counts.

not public ones” and that “[t]he allocation of public health resources often reflects private interests, not public ones.” Wagner (2021: 499) overviews that:

“[a]n entangled system of political economy will inject to some degree the imperatives of political competition into the pattern of scientific research along those margins where data can serve as instruments of political competition. Such entanglement between science and politics is probably unavoidable...”

Coyne, Duncan, and Hall (2021) argue that the assumption of a benevolent social planner, or a “public health brain” who can solve pandemic issues, ignores the political incentives public health planners face (both between politicians and within bureaucracies), including political competition, political reward and punishment to lower-level political actors, and rent-seeking.

In developed countries, these issues pervaded most policymaking, as the vast literature has since found. For instance, Aizenman, Jinjark, Nguyen, and Noy (2021) find that stimulus package sizes across the globe passed during the pandemic were largely determined by politics and, particularly, polarization: less polarized governments were able to mobilize resources more easily. Polarization also played a role in mask usage: Lang, Erickson, and Jing-Schmidt (2021) analyzed nearly half a million Tweets regarding mask usage, examining the existing polarity between anti-mask and pro-mask communities. While anti-mask Tweets made up the minority of mask discussions on Twitter, they found that pro-mask communities tended to exist within an ‘echo-chamber,’ which insulated this group from the anti-mask community. Cui, Heal, Kunreuther, and Liu (2021) find that many US state orders (distancing, lockdowns, masking, and so forth), were determined, in part, by the politics of adjacent states, and whether those

states had such orders in place or not. Relatedly, Grossman et al. (2020) examine the role partisanship plays in physical distancing recommendations. In Democratic-leaning counties, government recommendations to distance led to greater mobility reduction than in Republican-leaning counties. Interestingly, recommendations in Democratic-leaning counties from Republican officials had the greatest effect on mobility reduction. Regarding stay-at-home orders, McCannon and Hall (2021) find that such orders were issued relatively earlier in the most economically unfree states. Importantly, March (2021) finds that FDA regulations existing prior to the pandemic slowed down the ability to test certain medicines like Remdesivir and to develop COVID-19 tests and vaccines.

Developing countries faced similar political economy issues, of course with much larger and more negative relative impacts. Karoff (2020) finds that policy and politics played a major role in food aid distribution in Uganda, with the government even making certain food aid distribution illegal during the pandemic. Ghosh (2022) finds that vaccine ‘grabs’ by wealthy nations served to prolong the pandemic, as poorer countries were unable to be vaccinated as early and thus could not stop the spread of COVID-19. Onyisha et. al. (2021) find that informal sectors in parts of Africa, like labor and community associations, are crucial to being able to mitigate and control the COVID-19 pandemic, and that top-down approaches may not be able to achieve these ends. Bull and Robels Rivera (2020) find that COVID-19 has worsened inequality and only served to strengthen elite control in Latin America. Cohen and van der Muelen Rodgers (2021) examine global political economy issues surrounding females during the pandemic, and they find that women were more likely to experience job loss, work in essential jobs, and

experienced a greater reduction in income relative to men. Moreover, women were more likely to drop out of the labor force because of their relatively greater share of the reproductive workload.

My dissertation contributes to this important and growing literature, particularly in relation to the COVID-19 pandemic in the US. Particularly, I explore several areas: first, I examine commercial spaces and commercial relationships during COVID-19. While many have discussed relationships that waned due to the pandemic, to the best of my knowledge, none have yet explored what happened to commercial relationships, that is, relationships formed because of commercial spaces. Since commercial spaces were uniquely impacted by COVID-19, this is an important area of exploration. Second, I examine what makes pandemic entrepreneurship a unique form of crisis entrepreneurship. Many have discussed the entrepreneurial actions throughout the pandemic, yet none have situated this form of entrepreneurship within the literature as its own type of entrepreneurship or defined its distinctive characteristics. This chapter sets out to do so. Last, I explore mask mandates and political pressures that inform such mandates. Many scholars engaged in this literature explore how policymaking might be shaped by political incentives, and this chapter applies this idea to US state mask mandates. Particularly, I explore whether governors' mask mandates were driven more so by public health concerns or reelection incentives. All three chapters in this dissertation seek to add to the political economy of COVID-19 literature by exploring three unique topics on the social, entrepreneurial, and political effects of the pandemic.

## CHAPTER ONE: COMMERCIAL FRIENDSHIPS DURING A PANDEMIC<sup>3</sup>

Although much of the nascent scholarship on COVID-19 has highlighted the tremendous health, economic, and social consequences of the pandemic, what has been underappreciated is the loss of *commercial* friendships due to the pandemic. Markets are social spaces where individuals can meet and form meaningful connections. But, because many market interactions that would have taken place in person before the pandemic moved remote and online, or were cancelled altogether, the COVID-19 pandemic has limited the ability of market participants to form and maintain meaningful social bonds. Indeed, we argue that COVID-19 is a disruptor of the formation and continuance of these commercial relationships. Specifically, we find that throughout the COVID-19 pandemic: (1) commercial interactions have become more anonymous and less personalized; (2) the formation and maintenance of commercial friendships are hindered because of the transition to virtual platforms, which are imperfect substitutes for in person connections; (3) during lockdowns, individuals spend more time interacting with closer ties rather than weaker ties; and (4) during the pandemic commercial settings are less likely to serve as social arenas.

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<sup>3</sup> A version of chapter has been published in *The Review of Austrian Economics* and is coauthored with Dr. Virgil H. Storr and Michael Romero. See <https://doi.org/10.1007/s11138-021-00556-7>.



## **Section One: Introduction**

COVID-19 has, in large part, defined 2020 and 2021. As of March 2022, there are over 6 million deaths worldwide from the novel coronavirus (Dong, Du, and Gardner 2021) and there are around 1 million deaths in the United States alone (The New York Times 2022). The pandemic has also affected people's mental health. During the COVID-19 pandemic, the prevalence of general anxiety disorder and depression are significantly higher (Bueno-Notivol et al. 2021; Hyland et al. 2020). For instance, 77% of respondents in an ABC News/Washington Post poll done in late March of 2020 noted that their lives have been disrupted by the pandemic, while 70% reported personal stress due to COVID-19. Moreover, 70% were also worried that they or an immediate family member could become infected (Langer 2020). The physical and mental health effects on infected individuals can be immense, and for many, may last for years beyond their becoming sick.

COVID-19 has also caused tremendous economic disruption. Economists have described the COVID-19 recession as the worst economic crisis since the Great Depression. The United States' GDP has taken a large hit during the pandemic. Makridis and Hartley (2020) estimated "a 5 percent decline in real GDP growth for every one month of partial economic shutdown. Thus, the economic cost of two months of mitigation measures is \$2.14 trillion (10 percent)." The Bureau of Economic Analysis (BEA) estimated there was a 9.1% drop in second quarter 2020 GDP (BEA 2020). Estimates from research bank Jeffries found that large firm bankruptcies were 244%

higher, year-over-year in the July-August 2020 period (Moon 2020). In terms of unemployment, the Congressional Research Service (CRS) (2020) found that the “unemployment rate peaked at an unprecedented level, not seen since data collection started in 1948, in April 2020 (14.7%) before declining to a still-elevated level in October (6.9%).” And, in April of 2020, “every state and the District of Columbia reached unemployment rates greater than their highest unemployment rates during the Great Recession” (CRS 2020).

While COVID-19 has resulted in tremendous loss of life and disrupted people’s health and livelihood, it has also had a tremendous social cost. Indeed, pandemics can undermine social trust and disrupt social networks. For instance, Aassve et al. (2020) studied the deadly influenza virus of 1918-19 and found that “experiencing the pandemic likely had permanent consequences in terms of individuals’ social trust.” The authors conclude that:

failure of institutions and society to cope with the crisis (a failure whose most visible result was the widespread mortality) is what, we believe, led to significant and persistent consequences on individual's social trust—a point which ... might have some relevance for the current crisis caused by COVID-19 (Aassve et al. 2020).

They go on to describe how the “collapse of traditional networks of social support as well as with the inability of public institutions to provide adequate care and relief” is what led to large changes in trust, particularly for those who were infected with and survived the flu (Aassve et al. 2020). Interestingly, those in neutral countries during WWI experienced a greater negative effect of the epidemic on trust, likely because such countries had less

ensorship of the news, and thus these individuals had nearly complete information about the severity of the epidemic (Aassve et al. 2020).

The growing literature on the COVID-19 pandemic, however, has not yet discussed the impact of COVID-19 on *commercial* friendships, that is, friendships and acquaintances formed because of marketplace interactions. Markets are spaces where individuals can form deep and meaningful relationships that would otherwise be nonexistent (Storr 2008). As Smith ([1759] 1976: 223-224) puts it,

the necessity or convenience of mutual accommodation very frequently produces a friendship not unlike that which takes place among those who are born to live in the same family. Colleagues in office, partners in trade, call one another brothers; and frequently feel towards one another as if they really were so.

Markets are not only meeting grounds where people might encounter potential friends and close acquaintances, but they also facilitate interaction in ways that develop trust. The COVID-19 pandemic has disrupted such meeting grounds and relationships, at least in places where it provided the impetus for shut-downs and closures of workplaces, schools, restaurants, gyms, and so forth. While loss of social contact has been discussed throughout the COVID-19 crisis, loss of *commercial* friendships has not yet been discussed in any meaningful way. We are the first, to our knowledge, to contribute to this area of study through the COVID-19 crisis.

In this paper, we argue that if one considers the market as a social space, where individuals can meet and form commercial friendships and acquaintances, then COVID-19 has necessarily disrupted such a process. We claim that people met with commercial and workplace friends much less frequently due to work-from-home measures, and that

they felt they lost something of great value, despite the fact that many enjoy working from home. Our primary data to support this claim is a survey aimed at “Understanding Response and Recovery During the COVID-19 Pandemic.”<sup>4</sup> Our secondary data comes from popular and academic articles attempting to understand individuals’ evaluations of their market friendships and acquaintances during COVID-19. We contribute to several important literatures. First, we contribute to the literature on the market as a social space and the literature on relational work by focusing on the importance of contact, especially face-to-face interactions, in facilitating the development and maintenance of commercial friendships. Second, by focusing on the loss of commercial friendships during the COVID-19 pandemic, we add to the growing literature on the social costs of the pandemic.

The paper is structured as follows: Section Two discusses how commercial relationships not only form within markets, but often rely upon markets for their survival. Then, we examine how virtual interactions often cannot replicate the face-to-face interactions that frequently take place in market spaces. Section Three examines COVID-19 as a disruptor of these commercial friendships and is supported by survey and other evidence regarding commercial friendships and acquaintances during the COVID-19 pandemic. We find that throughout the COVID-19 pandemic: (1) commercial interactions have become more anonymous and less personalized; (2) the formation and maintenance of commercial friendships are hindered because of the transition to virtual platforms,

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<sup>4</sup> This survey was conducted on behalf of the Mercatus Center at George Mason University in September 2020, and it surveyed 1105 individuals from the 50 United States, Washington, D.C., and Puerto Rico. The survey asked respondents about their experiences during the first few months of the COVID-19 pandemic. The survey was evenly balanced demographically (e.g., 53%-to-47% Female-to-Male, 40%-to-32% Democrats-to-Republicans). We will refer to this survey throughout as “our survey.”

which are imperfect substitutes for in person connections; (3) during lockdowns, individuals spend more time interacting with closer ties rather than weaker ties; and (4) during the pandemic commercial settings are less likely to serve as social arenas. In general, we argue that COVID-19 has disrupted commercial relationships, which has large consequences as people suffer large social losses and increased loneliness. Section Four offers concluding thoughts.

### **Section Two: Markets as Social Spaces**

There have been several surveys conducted in recent years that speak to the importance of friendships. Pew Research Center (2018), for example, asked a series of close-ended questions to a nationally representative panel of 4,729 randomly selected U.S. adults. They found that 47% reported “spending time with friends” who provided “a great deal of meaning and fulfillment in their lives” (ibid.: 5). In a related survey of the same year Pew Research Center (ibid.: 4) asked its U.S. adult respondents “to describe in their own words...what provides them with a sense of meaning.” When asked this open-ended question, 19% mentioned friends with the majority (69%) discussing family (ibid.). Despite this disparity between the answers to the closed- and open-ended questions, it is clear that at least for many Americans their friendships are regarded as meaningful. Similar findings are reported in the most recent World Values Survey of 2017-2020 (Haerper et al. 2020), wherein about 51% of Americans reported that friends were a “very important” aspect of their lives, while about 38% reported that friends were “rather important.” Similar findings are reported when considering the responses from all 79

surveyed countries. Combining all survey respondents, regardless of country, about 45% reported that friends were “very important,” while about 44% reported that friends were “rather important” (ibid.).

The potential of markets to support the development and maintenance of friendships, then, is particularly important given how meaningful people generally regard their friendships. For Austrians, the market is a social process, and like other social phenomena it is constituted by the meanings its participants attach to it. As Mises put it ([1949] 2007: 312), “the market is a social body; it is the foremost social body. The market phenomena are social phenomena. They are the resultant of each individual’s active contribution.” Not surprisingly, then, Austrians have highlighted the personal relationships that not only form within markets but depend on markets for their cultivation, maintenance, and survival (see e.g., Chamlee-Wright 1997, 2010; Storr 2008, 2009, 2010; Chamlee-Wright and Storr 2009, 2014; Storr et al. 2015; Grube and Storr 2018; Storr and Choi 2019; Storr and Stein 2019). Hayek (1976: 112-113), for instance, recognized that the market is the,

‘cash-nexus’ which holds the Great Society together, ... the great ideal of unity of mankind ... in the last resort depend on the relations between the parts being governed by the striving for the better satisfaction of their material needs.... it is the market order which makes peaceful reconciliation of the divergent purposes possible – and possible by a process which redounds to the benefit of all. The interdependence of all men, which is now in everybody’s mouth and which tends to make all mankind One World, not only is the effect of the market order but could not have been brought about by any other means. ... the degree to which we can participate in the aesthetic or moral strivings of men in other parts of the world we owe to the economic nexus.

Our economic relations, Hayek explained, are critical for the development and maintenance of our social relations, especially when our relations are across social distances.

Through their buying, selling, managing, training, coworking, and simple conversation, market participants develop personal ties with one another, which can develop into commercial friendships. A “commercial friendship” is a term that was coined by Price and Arnould (1999: 50) to denote a relationship that, while founded in a business or economic context, involves “affection, intimacy, social support, loyalty, and reciprocal gift giving,” which are typically attributes that are associated with non-market, social contexts. When commercial friendships do spring from market relationships between, say, co-workers, supervisors and their employees, or service providers and their customers, they can be characterized by commitment, trust, communication, closeness, solidarity, and personal loyalty, each varying depending upon the unique characteristics of the context within which the commercial friends are interacting (see e.g., Bove and Johnson 2000, 2006, Gummesson 1991, Hausman 2001, Arnold et al. 2011).

Friendships that are developed and maintained in markets are quite common. In a nationally representative study, Thomas (2019: 822) “presents results from the first U.S. survey with data on how respondents met their friends, specifically the two nonfamily friends they most often socialize with.” According to Thomas (*ibid.*: 830),

The most common sources of new friendships are very distinct by age: Educational settings are the biggest source in early life, workplace-formed friendships predominate in the middle stages, and brokerage through neighboring (as neighbors or introduced by neighbors) is most common in the later stages of life. The formally organized settings of education and

work are the most exceptionally life stage dependent, brokering almost no friendships outside of their dominant stages.

Arguably, some of these common contexts for friendship development can be regarded as commercial spaces. They are commercial spaces because they are sites where commerce, that is the activities related to buying and selling, take place. Think here of stores, gyms, hair salons and barbers, restaurants and pubs, factories, offices, and other workspaces. Think also of internet-based social networking communities. Think here of also educational settings like public and private universities and private K-12 schools where students pay tuition as well as summer camps, ballet classes, and music lessons where fees are charged. While the degree to which people in these contexts orient their actions toward purely economic goals varies, there tends to be at least some dependence on market exchange for goods and services that support the goals of the actors within these settings.

#### **A. Markets can facilitate the formation of friendships**

An important feature of markets, one which allows for the development and maintenance of commercial friendships, is the provision of opportunities and reasons for individuals to interact with family, friends, acquaintances, and even strangers. Workplaces are sites where individuals interact frequently with others who they might not otherwise have occasion to know. Restaurants, bars, movie theaters, concert venues, and other destinations provide social spaces for old friends to meet, new acquaintances to interact, and strangers to share meaningful experiences with one another. As Storr (2010: 204) puts it, individuals experience the market “as a social space where social content often overlays economic relations and where social friendships are developed and



maintained.” That is, like other social settings, markets provide the context within which friendships emerge. This notion is well put by Allan (1998: 688-689), who notes that,

the character of friendship (and other informal) solidarities are patterned by the broader features of people’s social and economic location. In this regard, it is inappropriate to conceptualize friendship as a ‘natural’ or ‘pure’ relationship, that is as one based solely upon individual choice, feelings and commitment. Rather its form and content are inevitably influenced by the circumstances – or contexts – under which it is constructed.

Markets are especially conducive for the creation of “a more secure matrix for civic and personal friendship” (Badhwar 2008: 301). Since successful market interactions depend upon trust, markets place individuals in situations where they can observe the trustworthiness and character of others (Storr and Choi 2019). While friendships are dependent upon the choices of potential friends, the context within which friendships are formed influences the nature and quality of their relationships.

In addition to providing opportunities or reasons to spend time together, another important way in which a market context influences the development of friendships is by allowing for the accomplishment of tasks around which individuals can personally connect with one another. In highlighting the influence that social context plays in the development of friendships, Feld (1981, 1982, 1984) coined the term “focus of activity,” which is a “social, psychological, legal, or physical entity around which joint activities are organized” (Feld 1981: 1016). While foci of activity can take various forms, such as families, associations, neighborhoods, departments, firms, teams, and clubs, they “all have the common effect of bringing a relatively limited set of individuals together in repeated interactions in and around the focused activity” (Feld and Carter 1998: 136).

Moreover, each friendship that is formed around a focus of activity “is embedded within a relatively dense web of other relationships (some friendships and some not) that are derived from the same focus of activity” (ibid.). This social embeddedness can influence the shared norms and sanction capabilities that individuals take into consideration in their individual plans for action, which in turn, influences the constitution of the shared meanings that others give to certain types of behavior.

Market settings such as workplaces and commercial establishments where people socialize are foci of activity. For example, although workers are generally oriented towards the accomplishment of some goal in their place of work, such as finishing their projects on time, making a good reputation for themselves, or accomplishing their shared mission, its accomplishment requires varying degrees of interaction with other workers in a concerted, team effort. This repeated, social interaction tends toward the development of personal relationships among the workers, regardless of whether a friendship is intentionally pursued by them. In their survey of Americans with full time jobs, researchers at Olivet Nazarene University (2018) found that 82% of respondents reported having at least one friend at their workplace, while 29% reported having at least one best friend. Through the unfolding of the social process required to accomplish an organization’s shared goal, the workplace is constituted as the “focus of activity,” the foundation upon which personal relationships within the workplace are embedded. Although this is often an unintended or emergent outcome that develops through time as former strangers (new workers) grow into acquaintances or close friends through repeated interaction and routine cooperation, the relationships are nonetheless meaningful

even if the individuals regard them as less important than their existing ties with close friends or family developed in other social contexts (Feld and Carter 1998). While many, if not most, of the interactions and relationships “that develop around a foci of activity do not become friendships...most friendships do originate in one focus of activity or another” (ibid.: 137). This is not to suggest that markets are the only social arena where meaningful social bonds can be formed or that social bonds formed in markets are as significant as, or more significant than, relationships formed in other settings. It is simply to recognize that economically grounded relationships are not inherently less meaningful and may very well develop into close, personal friendships.

Another common focus of activity in markets is a buyer-seller relationship, such as a supplier-retailer, salesperson-customer, or service provider-client relationship. “In a service setting,” Jones et al. (2008: 475) explain, “consumers can become committed to two different entities: the service company and the individual employee with whom the consumer interacts.” As Jones et al. (ibid.) elaborate, “the service employee may occupy two different exchange-based roles, one of economic exchange (i.e., the provision of a service) and/or one of social exchange (i.e., friendship).” A friendship can spring from consumers and service employees entering repeated social exchanges with each other. This is essentially “another layer of the relationship between service consumer and employee or organization ... [that] serves to enhance commitment to the economic relationship ... by adding another psychological force to compel maintaining the relationship” (ibid.: 477). Higher levels of friendship or personal commitment can be a consequence of the customer experiencing “satisfactory social exchange with the service

employee” which can subsequently “result in higher levels of employee commitment as it is transferred over to the economic relationship” (ibid.: 476). Therefore, in some instances, commercial friendships can contribute to the trust and reciprocity that friends experience in their economic exchanges with one another.

The qualities of buyer-seller relationships in markets are also explored by Homburg et al. (2011) who conduct “a cross-industry survey of 56 sales managers, 195 sales representatives, and 538 customers” (795). While the authors are primarily seeking an understanding of the determinants of “customer loyalty” to a good or service provider, they nonetheless offer valuable insights into the different types of relationships that form between buyers and sellers. Like Jones et al. (2008), Homburg et al. (2011: 805) found that “salespeople often play two roles in interactions with customers: the role of a businessperson and the role of a friend,” which are not mutually exclusive in that salespeople can occupy multiple roles at once (also see Heide and Wathne 2006). While the outcome of such relationships depends upon the choices of the actors and the environment within which they are forming their friendships, friendships certainly do form between not only workers within the same firm or department but also between workers and their customers. In a similar study, Yim et al. (2008) examine how the personal relationships developed between customers of fast-food restaurants and hair salons influence the customers’ loyalty to the businesses. They surveyed 360 adults from Hong Kong who “had visited a fast-food restaurant and hair salon at least once in the prior six and nine months” (ibid.: 748). They found that

service quality perceptions and customer satisfaction built through product and service experience, in parallel to the personal relationship developed

through social rapport with staff, significantly contribute to the development of trust, which has a significant impact on customer loyalty (and share of purchase)” (ibid.: 750).

While the goal of their study was also to understand the determinants of customer loyalty, Yim et al.’s (ibid.) findings suggest that commercial friendships are very much dependent upon the development of social rapport, trust, and loyalty between the exchange partners.

Yim et al. (ibid.) also present an insightful continuum on which different foci of activity between buyers and sellers are listed, depending upon how conducive the activities are for the development of commercial friendships. Since fast food restaurants are more “transactional,” in that they rely *less* on personal connection and intimacy, and hair salons are more “relational,” in that they rely *more* on personal connection and intimacy, these two business types resemble two ends of a “transactional-relational” continuum. In this sense, the relationship between a hair stylist and a repeat customer tends to resemble the relationship that develops between, say, financial advisors and their clients or real estate agents and homebuyers. Whereas the more “transactional” relationship between a cashier and a hungry customer tends to resemble the relationship between a retail sales associate and a shopper or a movie ticketer and a movie-going couple. Moreover, a “transactional” exchange tends to be a one-off encounter whereas a more “relational” exchange tends to be part of an ongoing relationship that may last for weeks, months, or even years. This is not meant to imply that commercial friendships cannot develop from relationships that are less “relational” and more “transactional.” These ideal types are only meant to help illustrate the different forms that relationships

among buyers and sellers can take. They also suggest that some commercial contexts can be more conducive to the development of friendships than others.

Third, because markets function as social spaces for shared, meaningful experiences and the accomplishment of foci of activities around which to connect, they act as spaces within which weak ties can develop into strong (close) ties. Granovetter's (1973, 1983) work on "the strength of weak ties" points to the importance of weak ties in facilitating the discussion and the transfer of information between different social groups. In discussing how to understand the strength of dyadic ties, however, he stressed the importance of the frequency of interaction. Strong ties, for Granovetter (1973), need a high frequency of interaction to be developed. While it is obvious that markets allow for a wide range of low-frequency and one-off interactions, markets also allow for and encourage repeated interactions, personal exchanges, and shared experiences, and as such they can also be important spaces for strong ties to be cultivated (from weak ties) and maintained. Again, we are not claiming that these relationships would not form without markets, nor are we claiming that market-based relationships are superior to non-market-based relationships. Rather, we are arguing that markets provide the ability for individuals to interact with others, and the frequency of such interactions, in part, determines the strength of a relationship. Next, we examine how virtual interactions often cannot replicate the face-to-face interactions that frequently take place in market spaces.

#### **B. Virtual interaction is an imperfect substitute for face-to-face interaction**

While remote work, online shopping, social media, and other types of virtual interactions are valuable innovations within markets, they do not easily replicate the in-

person commerce and social exchange that markets typically facilitate. In other words, virtual market alternatives are imperfect substitutes for personal interactions when it comes to their facilitating the strengthening of dyadic ties, even though such mediated connections might be valuable complements or substitutes to social interaction for some people in certain contexts.

Take, for example, the fact that most romantic couples have tended to “meet” online in recent years. In their study of the common sources of romantic relationships, Rosenfeld et al. (2019: 17753) relied on a nationally representative survey of heterosexual, U.S. adults and found that “meeting online has displaced friends as the main way heterosexual couples in the United States meet. Traditional ways of meeting partners (through family, in church, in the neighborhood) have all been declining since World War II. Meeting through friends has been in decline since roughly 1995.” And by 2017 they found that 39% of adults reported having met their significant other online (ibid.)<sup>5</sup>, while “meeting through phone apps was responsible for at least half of the growth in meeting online from 2010 to 2017” (ibid.: 17754). What is important for our purposes, however, is the complementary role that markets play for virtual interactions by providing spaces along with goods and services that require face-to-face interaction between couples. Offering evidence in support of this contention, Rosenfeld et al. (ibid.: 17755) found a “post-2010 rise in meeting through bars and restaurants for heterosexual couples,” which they claim, “is due entirely to couples who met online and subsequently had a first in-person meeting at a bar or restaurant or other establishment where people

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<sup>5</sup> There were 2,495 responses in HCMST 2009 and an additional 2,997 in HCMST 2017.

gather and socialize.” Specifically, by 2017 they found that 27% of couples had a first in-person meeting at a bar or restaurant, most of whom after first “meeting” online (ibid.). Of course, the online spaces are themselves commercial settings. These findings highlight the complementary role that in-person market venues, like bars and restaurants, serve in providing spaces for face-to-face interaction.

This phenomenon in which new technologies serve a complementary role for either older technologies or in-person interaction is touched on by Lavoie (2017). He explains why new technologies (or “media”) which serve a communicative function, such as letters, word documents, emails, texts, phone calls, or phone apps, do not typically fully displace older types of media or in-person interaction (ibid.). Physical letters still serve a function, for example, despite the advent of email, phone calls still serve a function despite the advent of text and video calls, and restaurants and bars still serve a social function despite the advent of social media and dating apps. Rather than dating apps fully displacing the function that bars, clubs, or restaurants, serve for prospective daters, there are still advantages to in-person interaction in the commercial spaces. For many prospective daters, the advantage is not so much the in-person commercial space’s role as an initial screening venue within which people hope to meet their future partner, but as a space wherein people who previously met online can interact, face-to-face. And this interaction is often necessary for the development and maintenance of not only romantic relationships but close friendships. The advantage of the online dating app, on the other hand, tends to be serving as an intermediary social network that can be more extensive than friends and family, and serving as a screening device that can be more



effective, less costly, and less dangerous than in-person, first dates that were arranged prior to any virtual, social interaction. As Rosenfeld et al. (2019: 17754) put it, “the online precursor to face-to-face meeting inserts a layer of physical distance that can have benefits for safety.” For some, the internet makes family and friends no longer comparatively advantaged sources for screening potential friends or romantic partners. And as Rosenfeld et al.’s (2019) data demonstrate, the internet has proven to be a more effective means of serving this preliminary function for some individuals to expand their social networks or meet their spouse. But, even when online settings serve an initial screening function, developing personal relationships also requires in-person market settings. Two responses from the 2017 survey, referenced by Rosenfeld et al. (ibid.: 17756), reflect this interdependent relationship between online platforms and in-person commercial spaces,

[1] We found each other through [dating site]. We met in person at a local grocery store. We then proceeded to hang out with each other every single day for the next few months;

and,

[2] We met online. We had drinks one night and were friends for a while then got into a serious relationship.

These responses point to the complementary function that in-person commercial spaces serve in providing individuals with venues to interact in and activities around which they can develop their relationships.

The findings of Rosenfeld et al. (2019) are supported by a recent Pew Research Center (2020a: 3) survey of 4,860 U.S. adults conducted in October 2019, wherein 23% reported having “gone on a date with someone they first met through a dating website.”

Specifically, the survey revealed that “39% of online daters – and 12% of Americans overall [among those surveyed] – have married or been in a committed relationship with someone they first met through a dating site or app” (ibid.: 16). In short, communication technology, like the telephone or the internet, need not fully displace existing face-to-face interactions, they simply reinforce those interactions while serving as a complementary means through which individuals can start or develop their relationships.

The scholarly literature within psychology and communication studies has found that virtual interactions are substitutes but are imperfect substitutes for face-to-face interaction. What is often referred to as computer-mediated, virtual, or online communication by psychologists and communication scholars is typically juxtaposed against face-to-face interactions when analyzing the consequences of a growing share of people, throughout the world, using the internet to communicate with others. Empirical work in developmental psychology, for example, has found that computer-mediated communication between adolescent friends does not fully displace face-to-face interaction, it simply supplements and enhances these personal encounters (Valkenburg and Peter 2011; Dienlin, Masur, and Trepte 2017; Manago et al. 2020). Although the ability to engage in “digitally mediated social relationships” serves a complementary role in maintaining our offline friendships – which is especially salient when our friends and family are physically distanced from one another – such mediated interactions cannot fully replicate the experiences of unmediated, face-to-face conversation and interpersonal exchange (Chambers 2013). While virtual media allow for the expansion of social networks into spaces that would otherwise be inaccessible (Wellman 1997, Best and

Krueger 2006), “the reduction of social cues [that virtual communication cannot always avoid] makes it far more difficult to develop the intimacy and confidence necessary to deepen relationships” (Best and Krueger 2006: 397). Because of these qualitative differences between virtual and in-person communication, the internet tends to be a more suitable platform for the development of weak ties rather than strong (close) ties (Bargh and McKenna 2004, Blanchard and Horan 1998, Haythornthwaite 2002).

We are not implying that internet usage and online communication between already existing friends somehow damages or is antagonistic to their relationships. In fact, even weak ties could be maintained online and thus online be substitutes for in-person weak ties, especially during a pandemic. Rather, what we are contending is that in-person connections cannot be fully replicated on a virtual platform, at least not in the long run (see Miguel 2018). Multiple mediums through which individuals connect are valuable means to maintain and develop relationships, and new relationships can, and often do, spring from online websites and phone apps. But the fact that personal relationships start online does not imply that they will also be developed or even maintained on the same virtual medium, without the assistance of unmediated interaction. Rarely do such online relationships develop into close friendships, and when they do, they generally require in-person activities, parties, dates, or some other form of personal interaction to transition into a close friendship.

Related to this discussion of virtual interaction is a concept known as “impression management” – the process by which individuals attempt to influence the perceptions they give to people with whom they are interacting. Communicators do this by seeking to

control the information they reveal about themselves through their spoken or written words or non-verbal social cues (Goffman 1959, Walther 1996). As media have become increasingly virtual, impression management has taken on various forms. Mediated forms of communication that are asynchronous afford communicators opportunities that would otherwise be unavailable in synchronous or face-to-face interactions, because with asynchronous mediums the communicators are released from geographic and temporal constraints and can review and edit their messages before they are sent. Whereas with synchronous media, like live phone or video calls, although individuals might be released from geographic constraints, they do not necessarily have the same opportunities in terms of their ability to revise, edit, and review their messages before they are released to their receiving audience. This is especially salient on video-conference platforms, like Zoom or Skype, where the communicators are interacting with one another in real-time (Bailenson 2021). These platforms have advantages over other media vis-à-vis the communication of social cues but disadvantages relative to in-person face-to-face communication. Overall, depending upon the medium's capacity for the communication of social cues and its capacity for synchronous or asynchronous communication, it can have differential effects on how people perceive those whom they are interacting with and the overall quality of their interactions, effects that differ from what would otherwise emerge in face-to-face interaction (ibid.).

Regardless of whether virtual interactions are asynchronous or synchronous, they are still reduced-cue social contexts when compared to face-to-face communication and relationship development. This is not meant to imply that mediated forms of

communication in virtual contexts do not serve a valuable function. What it does suggest, however, is that face-to-face interaction is better suited than even the new communicative media at allowing for the development of close, personal friendships in commercial spaces through simple conversation, activities, and shared experiences.

To summarize, markets (1) give individuals a reason to spend time together and (2) provide tasks around which people connect. As a result, (3) they allow for the strengthening of weak ties into strong ties. Additionally, market technology, like video calls, texting, and other substitutes to in-person interaction provide an imperfect alternative to face-to-face interactions. While technology can help form or maintain ties, certain aspects of in-person, face-to-face interaction are necessarily lost on such alternative platforms.

Next, in Section Three, we examine primary and secondary data based on survey responses and popular and academic articles regarding the development and maintenance of commercial friendships and acquaintances during the COVID-19 pandemic. We argue that the pandemic has indeed disrupted such commercial relationships, consequently contributing to social losses and increased loneliness.

### **Section Three: COVID-19 as a Disruptor of Commercial Friendships**

The COVID-19 pandemic has arguably been a large disruptor of commercial friendships. We propose that there are four main disruptors of commercial friendships during pandemics, and we specifically draw upon evidence from the COVID-19 pandemic. First, pandemics create more anonymity due to the increase in physical

distancing and virtual transactions. Second, the social and electronic capabilities available to switch from in-person engagement to online engagement are not perfect substitutes for face-to-face interactions. Third, our social networks effectively shrink during pandemics, leading to less interaction with our weak ties (in markets) and more interaction with our close, familial ties. Last, pandemics lead to lower capacity-limits in commercial settings like bars, sporting arenas and concert venues, which limits social and commercial interactions. In this section, we analyze each one of these disruptors in light of evidence from COVID-19.

#### **A. Increased market anonymity due to COVID-19**

Pandemics like COVID-19 and pandemic-related policies push us into more anonymous, less personalized market interactions, in which face-to-face interactions are replaced with virtually mediated forms of social interaction and economic exchange, such as online shopping, contactless deliveries, and video conference calls. In the case of COVID-19, the most obvious reason for such outcomes stems from the health risks associated with face-to-face interactions. In response to these risks, government policies effectively shut-down or decreased the capacity of most market-created meeting spaces. Workplaces moved online, bars and gyms closed, social congregations halted, schools went largely virtual (with the remaining in-person students physically distanced), and other in-person social spaces were legally prohibited from opening. On top of that, government-mandated and voluntary mask wearing tended to increase the level of anonymity or hamper their ability to convey non-verbal social cues during peoples relatively limited in-person interactions in commercial spaces. The advent of public mask

wearing made the recognition of and interaction with weak ties, including acquaintances and new friends, even more infrequent.

Consider the over 7.7 million people who lost their jobs due to COVID-19 (Woodbury and Fronstin 2020), and the estimated 42% of the workforce working from home in 2020 (Wong 2020). Yelp found that there were nearly 100,000 business establishments in the US that temporarily shut down due to COVID-19 and are now *permanently* out of business (Sraders and Lambert 2020). According to Yelp, that is around 60% of the businesses that originally had only temporarily shut down – meaning hundreds of thousands of businesses temporarily closed throughout the pandemic (Sundaram 2020). Even businesses that remained open shifted to more anonymous practices, such as curbside delivery, in-store pickup (mitigating the need to shop in-store), and most anonymous of all, ‘leave at front door’ options, where no social interaction occurs. Retail stores opted for curbside delivery, and many restaurants only opted for curbside delivery or home delivery to keep people out of establishments, especially in states where restaurants were closed.

There have been social consequences because of the COVID-19 online shopping, contactless delivery, work-from-home reality. According to a recent survey, nearly 70% of American workers say, “the coronavirus pandemic is the most stressful time of their professional career,” while 88% “of workers reported experiencing moderate to extreme stress over [the first 4-6 weeks of the COVID-19 pandemic]” (Human Resource Executive 2020). The Martec Group conducted a similar survey (Laker 2020) and found that “[j]ob satisfaction, job motivation, and company satisfaction were also negatively

affected” by working from home. Indeed, 59% of employees surveyed dislike working from home, while 42% of employees who switched to working from home due to the pandemic reported increased stress levels (ibid). Another survey of 4,000 remote workers found that many simply miss the office for its social aspect with 49% reporting they “miss seeing their colleagues... 14% saying they miss water cooler chats, and 11% reporting they were lonely” (Pelta 2020). Moreover, “20% of workers say they find it difficult to ‘unplug’ when they work from home” (ibid). It is worth noting that even if employees believe working from home is the ‘right’ or socially conscious decision, they can still greatly miss out on these social aspects.

A recent Gallup (2021) survey also found that working from home tended to be associated with higher levels of “worry” and “stress” among workers. In March of 2020, for example, among the remote workers surveyed, 63% reported feeling “worried” while 67% reported feeling “stressed.” This was 10% and 7% higher than the levels of worry and stress reported by non-remote workers (ibid.). And for each of the remaining months of 2020, an average of about 10% and 8% more *remote* workers reported feeling “worried” and “stressed” relative to non-remote workers (ibid.). Although not speaking directly to the importance of workplace friendships and acquaintances, the absence of these associations arguably does contribute to increased worry and stress.

Our survey found that before the pandemic, just over one fifth of people socially interacted *daily* with their work colleagues. During the COVID-19 pandemic, however, just under 12% of people socialized with work colleagues daily, marking a significant decrease from before the pandemic. Moreover, roughly 25% of respondents said they felt



less connected with work colleagues during the pandemic as compared to before. When asked why they feel less connected many cited not seeing work colleagues as one of the main reasons. One respondent simply said, “I work from home now so i dont [sic] see them every day.” Another respondent elaborated further: “I do not see people casually in the same way I did before the pandemic. Time with friends, coworkers, and acquaintances was often a mix of planned and unplanned time together, most often physically in the same place.” Yet another respondent discussed how they are “working from home now and barely see anyone.” Most directly supporting the argument that people are missing out on market friendships and acquaintances, one respondent said that they feel “less connected to colleagues due to working from home.” Workplace closures and remote workplaces leave employees lacking the social connections that they were used to enjoying. Without such face-to-face interactions, employees feel they are missing out on meaningful experiences.

While there may be good reason for many of the practices outlined above, particularly reasons aimed at reducing transmission of the virus, hospitalizations, and deaths, they all largely increase anonymity within the market, decreasing the likelihood that commercial relations will develop into friendships.

### **B. Virtual interactions are imperfect substitutes for face-to-face interactions**

Markets offer various tools that allow individuals to make and even maintain social connections even when they are physically separated. For instance, cell phones and computers are all relatively new and have been brought about due to dynamic market processes and innovation. Similarly, workplaces can leverage virtual platforms and

friends can stay close with messaging and video chatting. However, these tools are imperfect substitutes for face-to-face, market interactions. There is, for instance, a large and growing literature analyzing the negative effects from a work-from-home culture. First, working from home blurs the boundary between home and work, and can create an “always-on work culture” (Derks et al. 2016) that demands constant connectivity and responsiveness (Matusik and Mickel 2011). Moreover, there are often distractions in the home environment from family members, deliveries, and so forth (Allen et al. 2015). Ashforth et al. (2000) find that the proximity of home and work is emotionally fatiguing and leads to negative emotions.

While there are many virtual alternatives to activities like work and leisure, they do not easily replicate the shared, personal experiences that often occur in real world markets. In many cases, virtual alternatives, like video conference calls, might be unintendedly “neutralizing the social aspect of [work]” (Mo 2020). According to one tech marketer impacted by the pandemic in the San Francisco Bay Area,

A lot of my work ... is sending out emails, writing up docs, and there’s nothing glamorous or particularly exciting about these individual tasks that make up my day... What makes it a lot more enjoyable is being able to hang out with people ... as I’m firing off these emails (cited in Mo 2020).

One of the biggest disadvantages of online formats is their inability to replicate ‘water-cooler conversations,’ which are impromptu, casual discussions between co-workers about non-work related topics. But when workers are without “shared spaces and rituals, colleagues now have to be proactive to maintain relationships that once thrived on convenience” (ibid.). Many studies also discuss the necessity of casual conversations and suggest that they may unintendedly improve business (Sander et al. 2019). Such

conversations also improve our mental well-being, with non-contrived social interactions said to improve mental health (see Umberson and Montez 2010 for a literature overview).<sup>6</sup>

According to Sander and Bauman (2020), one of the major reasons Zoom calls are so draining (known as ‘Zoom fatigue’) is due to the lack of water-cooler conversations. They discuss how “[i]n person, we often meet people on the way to a meeting to catch up on issues or discuss our views before going in” (ibid). Now, however, individuals are unable to have quick, non-contrived conversations that, for many, can be cathartic or at least enjoyable experiences that offer some sense of social interaction. The nature of online meetings creates a contrived, less sociable environment because participants are immediately in ‘meeting mode’ upon joining (ibid.). There is rarely a segment of time prior to the meeting to naturally chat and catch up on non-work-related topics (ibid.). And even if such social time is permitted, it presents itself as deliberately contrived rather than an organic, spontaneous encounter. Due to “[t]he absence of casual hallway chats and long lunch breaks... the pandemic could potentially make workers feel more isolated” (Mo 2020).

Considering the prevalence of Zoom usage during the pandemic,<sup>7</sup> Bailenson (2021) offers several explanations for the associated fatigue, one of which is pertinent to the focus of this paper: “cognitive load.” Bailenson (ibid.: 3-4) explains why Zoom, and videoconferencing media in general, tend to require that users take on a higher cognitive

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<sup>6</sup> Not only are social relationships said to improve mental well-being, but they also are found to improve physical health and extend life expectancy (see House et al. 1988).

<sup>7</sup> Zoom went from having about 10 million users in December 2019 to over 300 million users by June 2020 (Iqbal 2020; cited in Bailenson 2021: 1).

load as they send and receive non-verbal social cues over the virtual platform, compared to in-person interactions. In typical face-to-face interactions, non-verbal communication flows “naturally” (ibid.: 3). That is, we tend to be only subsidiarily or “unconsciously” aware of our “own gestures and other nonverbal cues” and the cues we are receiving from our fellow conversers (ibid.). In typical Zoom interactions, however, we tend to exert more mental effort to both “send” and “receive” non-verbal cues (ibid.). Some examples of the conscious monitoring of, and the intentional generation and “sending” of, nonverbal cues over Zoom are the “centering of oneself in the camera’s field of view, nodding in an exaggerated way for a few extra seconds to signal agreement, or looking directly into the camera (as opposed to the faces on the screen) to try and make direct eye contact when speaking” (ibid.). When we “receive” social cues, such as head, facial, or eye movements, in our face-to-face interactions, they typically help signify when it is our turn to speak or they reveal whether our audience understands, agrees, or disagrees with us. In Zoom interactions, however, these cues can become more easily detached from the sender’s intentions. In this sense, Bailenson (ibid.: 3) notes, the cues can become “perceptually realistic, but not socially realistic” (ibid.). In other words, the cues that are received “are not tied to the intention of the person making the gesture” – there is a disconnect between the intended meaning of the cue-sender and the meaning that is ascribed by the cue-receiver(s), a meaning which the receiver(s), for example, may tie to the topic of the Zoom conversation even though the sender was simply responding to some unrelated, one-off encounter that is only perceptually visible from his perspective, such as a new email or message (ibid.).

In addition to COVID-19's impact on places of work and the relationships that develop at work, it has also impacted the learning and socialization abilities of university students, many of whom returned to campus virtually, largely participating in online classes from their home or dorm rooms. University students have experienced major disruptions in what was once an age-old, traditional journey of learning and socializing in groups with teachers and peers. We consider universities as part of the market because (1) virtually everyone at a university is either being paid to be there or paying at least some nominal fee to be there and (2) universities are a type of meeting ground brought about by the market, where colleagues and students can socially interact with one another and develop meaningful social bonds. In their study of Swiss university students impacted by COVID-19, Elmer et al. (2020) found that students had negative mental health trajectories that were higher than before the onset of the pandemic. This is largely attributable to the reduced prevalence of student study groups and their transition to online, virtual platforms. In addition, more students began studying alone, thus losing a core element of university social networks (ibid.). Such study groups are well-suited for socialization, friendship, relationship building, and the making of meaningful connections beyond the classroom.

In general, Elmer et al. (ibid.) found that students on campus have a much higher risk of social isolation and adverse psychological effects due to closures and distancing measures enacted in reaction to COVID-19. Further evidence of the psychological effects of the pandemic is found in Browning et al.'s (2021) cross-sectional study, in Spring of 2020, of 14,174 college students "from representative and targeted samples at seven

large, state universities” throughout the U.S. While “all students surveyed reported being negatively affected by the pandemic in some way...59% of respondents experienced high levels of psychological impact” (Browning et al. 2021: 19). The most common self-reported changes among the students “were increased lack of motivation, anxiety, stress, and isolation” (ibid.: 8). As one student put it,

I’m normally extremely motivated, and I’ve never struggled with depression, but have recently felt very sluggish and melancholy (ibid.).

According to another student,

I feel trapped. I don’t have anywhere I need to go since I can’t socialize, and I have schoolwork. But yet I still feel trapped due to actual restrictions and suggestions (ibid.).

While distanced and home learning can substitute for or complement in-person learning, the substitute is imperfect and may only serve a complementary function. Indeed, with the general shutdowns of in-person marketplaces and the rise of virtual substitutes, much of what we would consider market meeting grounds are no longer facilitating commercial friendships – restaurants, coffee shops, bars, gyms, grocery stores and more are now either virtual, closed, or do not perpetuate norms of either meeting new people or developing existing relationships. For example, during the pandemic it is more unlikely that one would stop to chat to a friend or acquaintance in the grocery store, or chat with their coffee barista. When asked what she missed most during COVID-19, one survey respondent reported that it was having the ability to meet and chat with her friends face-to-face while simply grabbing a cup of coffee or a bite to eat (Carty-Williams 2020).

### **C. Close ties over weak ties**

When pandemics occur, for various reasons, we spend more time interacting socially with closer ties and less time interacting socially with weaker ties than before the pandemic. As mentioned earlier, close ties describe closer friends who generally belong to the same social group and typically share similar information and knowledge (Granovetter 1973, 1983). Weak ties, however, are more distant friends or acquaintances who likely belong to separate social groups. Weak ties, therefore, can bridge an individual to new knowledge, social groups, job connections, and other social interactions and information. To the extent that our commercial friends and acquaintances are weaker ties than, say, our childhood friends or family members, we are more likely to spend less time with them during a pandemic.

Sandstrom and Whillans (2020) discuss how interactions with weak ties have significantly decreased during the COVID-19 pandemic (see also Pitas and Ehmer 2020; Walsh 2020; Mull 2021). What used to be 11-16 interactions with weak ties on any given day (Sandstrom and Dunn 2014) – with baristas, colleagues, classmates, and so forth – has dropped to nearly zero interactions during the height of the pandemic, at least ones that happen in natural, organic ways. Instead, we must now initiate these once organic encounters, which can feel awkward and forced (Sandstrom and Whillans 2020). Sandstrom and Dunn (2014) report that when individuals were asked to ‘personalize’ a transaction – such as smiling at, making eye contact with, or having a chat with their barista – they felt 17% happier and more socially connected than those who avoided such interactions. Rodriguez (2020) finds similar results, as he discusses how COVID-19 has

disrupted many of the weak ties we form through impromptu conversations with strangers: “individuals we don’t know well, if at all... nevertheless contribute to our happiness and sense of belonging.” He notes that many of these encounters, “which have largely gone missing with the advent of stay-at-home orders and lockdowns,” are critical to our well-being since they do not use much of our time, often provide opportunities to be heard and appreciated, typically come free of any expectations, and can help us cope with difficult challenges in life (ibid.).

Consider again the case of employees. As evidenced in our survey, one spends much less time with work colleagues during COVID-19 than previously spent. However, if those individuals do not live alone, they are at least working from home with spouses, children, and parents – largely experiencing most socialization with their strong ties, with very few organic, weak tie interactions. Also consider college students, who, as discussed earlier, are facing large restrictions on study groups, social events, and simple conversations. They, too, through the pandemic were either learning entirely from home, only partially going into school, or attending socially distanced lectures and class sessions where group-work and organic chit-chat is largely vacant. This cuts down on how many weak ties students can form and nurture, and especially reduces the likelihood that weak ties will develop into strong ties. Instead, students are largely developing and maintaining relationships with their familial, closer ties. The issue with spending time



with close ties is not inherently bad; however, a loss of weak ties can be quite detrimental for individuals (see Wakefield et al. 2017).<sup>8</sup>

#### **D. Capacity limits on commercial settings**

Pandemics such as COVID-19 limit the capacity of commercial settings to serve as social settings. Shutting down market settings during COVID-19 meant that social interactions also decreased. Many market interactions, workplace interactions, study groups, and so forth, cannot take place if market spaces are shut down or severely limited in capacity. Beginning in March of 2020, when the pandemic took the U.S. by storm, state and city governments across the country had imposed varying capacity restrictions on private and public buildings. Stricter states, like Michigan, had indoor dining banned for over 10 weeks, from mid-November 2020 through the beginning of February 2021. Even other states that had more relaxed restrictions still maintained at least some capacity limits at different times throughout the pandemic. Florida, for instance, had restaurants limited to 50% capacity – and while that is high relative to other states, it is still a 50% reduction of typical capacity settings pre-COVID, meaning at least 50% less gathering in social settings is taking place. According to New York Times data from early February 2021, 15 states were either partially or mostly closed, while the remaining were ‘mostly open,’ meaning there were still government implemented, capacity limits in public places that were legally allowed to open.

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<sup>8</sup> Wakefield et al. (2017) find that regardless of nationality or age, people who were members of groups with weak ties, like sports teams, church groups, and other associations, had an increased sense of meaning and security. And the more groups one was a part of, the better their outcomes were on these measures.

Earlier in the pandemic, however, many states had more severe restrictions. Throughout Spring of 2020, 46 states issued stay-at-home orders at some point, three of which had regional stay-at-home orders. Moreover, all 50 states at some point in Spring of 2020 ordered closures of schools and 42 states ordered closures of day care centers. Also, 48 states ordered closures of bars and sit-down restaurants throughout the earlier days of the pandemic. Meanwhile, 41 states closed “non-essential” retail throughout the entirety of the state, while 6 states closed non-essential retail regionally.<sup>9</sup> Thus, with stay-at-home orders and the closing or limitation of day care centers, restaurants, bars, and non-essential retail throughout large parts of the pandemic, it would seem obvious that meetings within these spaces would also be severely restricted.

Recall, in our nearly a quarter of respondents felt they were less connected to individuals during the pandemic than they were before it. Many explained that the reason they felt less connected was because they no longer see their colleagues and friends in person. While they still used other apps to connect, such as FaceTime, online games, and letters, many described how the connection just wasn’t the same as pre-COVID. One survey respondent, answering why they felt less connected to colleagues and friends during the pandemic, described how “[t]he ability to see others in person and have conversations/shared experiences has decreased.” This is exactly what we would expect, given that market meeting grounds are restricted while some are altogether closed.

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<sup>9</sup> See Storr et al. (2021b) for a discussion of the knowledge problems inherent in determining which businesses were truly essential as jurisdictions adopted stay-at-home orders that restricted non-essential activities.

The pandemic has led to many issues, including increased loneliness and the inability to socialize with friends and colleagues in market spaces. The BBC reported that “one in two Australians reported feeling lonely during the first lockdown. In Britain and the US, the ratio was two out of three” (BBC 2020). One person described the loss associated with friendships throughout the pandemic as quite difficult to come to terms with:

[T]o lose the ability to see the friends that make up the predominant volume of my everyday, face-to-face human interaction has been a challenge. I don't think I'd really appreciated the value of just seeing other faces, grabbing lunch together or...laugh[ing] our way through a film... (IGlobal Staff, 2020).

Indeed, it seems that these connections have not only been widely disrupted by COVID-19, but that individuals have consequently lost something of great value due to the closures and restrictions on market meeting places – that being the human connection.

#### **Section Four: Conclusion**

Markets provide reasons for individuals to meet with one another and spend some time together. Restaurants and bars provide venues to meet new people, reconnect with old friends, or celebrate with family. And regular trips to the office coffee pot might very well spark an interesting conversation with a new coworker, or perhaps offer a chance to catch up with an old friend. While online shopping and remote work are certainly valuable products of entrepreneurship available in the market that demonstrate its dynamism and ingenuity, they do not easily replicate the shared, personal experiences that often occur in real world markets.

In this paper, we argue that the COVID-19 pandemic has been a large disruptor of commercial friendships in several fundamental ways. First, pandemics create more anonymity due to the increase in distancing and virtual transactions. Second, the social and electronic capabilities available to switch from in-person engagement to online engagement are not perfect substitutes. Third, our networks shrink during pandemics, thus leading to less interaction with our market-related, weak ties and more with our familial, strong ties. Lastly, pandemics lead to lower capacity-limits in commercial settings, thus limiting social meetings. The pandemic and its related policies have altered and diminished our commercial friendships in large ways, and perhaps in some that are yet to be realized.

Future research can and should examine instances of entrepreneurial action that attempt to fix or mitigate the issue of decreased market friendships. There have certainly been many creative solutions to the COVID-19 pandemic in other ways, such as breweries creating hand sanitizer and individuals 3-D printing ventilator parts. Entrepreneurial acts like engineering enhanced ventilation systems, which allow for higher capacity limits, is an example of where entrepreneurship can mitigate the effects of pandemics on commercial friendships, and future research can explore such entrepreneurial discoveries. Future research could also examine the society-wide costs on productivity due to reduced collaboration in-person, with more ‘Zoom fatigue’ and less organic, non-contrived conversations. Surely this not only has effects on mental health and friendships, but workforce effects as well.

While pandemics can be an impetus for certain market innovations and social capital generation,<sup>10</sup> entrepreneurship and social capital are nonetheless reliant upon weak ties that are formed – and potentially made stronger – in face-to-face interactions between, say, service providers and their clients, investors and startup founders, managers and their staff, co-workers, or neighbors. And if commercial spaces are closed or limited during a pandemic, we would expect to see entrepreneurial responses to pandemics be less adaptive than they otherwise would be as individuals would be hindered in their attempts to mitigate the pandemic’s social consequences. That said, the longer the pandemic conditions persist, the more we should expect to see certain market innovations and social capital generation despite the closures and limitations of commercial spaces – where in-person exchange would occur – as there is often a resilience of human ingenuity and social coordination in the face of adversity, as is often seen in disaster scenarios (N. Storr et al. 2015). Moreover, if we accept that spending time and resources to socially interact with friends and family in commercial spaces are indeed valuable to consumers, then we would expect to see entrepreneurs – if they are free to do so – responding to profit opportunities to provide safe venues and activities for people to engage in.

But limits on in-person activities, and the closure of commercial spaces where face-to-face interaction would otherwise occur, can indeed inhibit people’s abilities to socialize, cooperate, and share meaningful experiences with one another. If friendships develop in commercial contexts – where trust and reciprocity are on display – then

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<sup>10</sup> See Storr et al. (2021a) for a discussion of the social capital that has generated in response to COVID-19.

placing physical limits on commercial exchange can hinder people's ability to connect with others. This may contribute to social division, as conversations among strangers, the integration of weak ties, and the strengthening of ties would be hindered. Putnam's (2000) "Bowling Alone" concerns become even more prominent in this world. If market spaces are shut down, we could see decaying of friendships and the ability to engage civilly with others, on top of heightened loneliness. Hertz (2021), for instance, has argued that we are already a lonelier society, and that COVID-19 is exacerbating the issue. The limits of market interactions during the pandemic have revealed one of its important but often underappreciated aspects – its capacity for peaceful, extra-economic exchange and the development of meaningful friendships. Consequently, we ought to be cognizant of the damaging effects that can occur when market settings are closed or restricted and should factor these costs into pandemic policies.

## **CHAPTER TWO: ENTREPRENEURSHIP DURING A PANDEMIC<sup>11</sup>**

Entrepreneurship during pandemics is a unique type of crisis entrepreneurship. This chapter seeks to analyze entrepreneurship during pandemics, specifically during the COVID-19 pandemic, and situate pandemic entrepreneurship within the broader crisis entrepreneurship literature. There is a large literature on crisis entrepreneurship, spanning from necessity, natural disaster, long term crisis, and financial crisis entrepreneurship. We contend that pandemic entrepreneurship is a unique type of crisis entrepreneurship. The framework we employ to understand crisis entrepreneurship, including pandemic entrepreneurship, is the Kirznerian ‘identification’ moment and the Schumpeterian ‘action’ moment. We argue, using evidence from the US COVID-19 pandemic, that pandemics impact both the ‘identification’ and ‘action’ moments of entrepreneurship. The identification moment is muddled for entrepreneurs because of the shifting conditions (such as new variants, shifting government mandates, and so forth) along with extremely high uncertainty. The action moment becomes more difficult because of the necessity of physical distancing and because, generally, all crises raise the cost of entrepreneurial action. In short, both moments become costlier. That said, we still document considerable entrepreneurship during the COVID-19 crisis, including the fact

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<sup>11</sup> This chapter is coauthored with Dr. Virgil H. Storr.

that pandemic entrepreneurs provide needed goods and services, introduce new goods and services, rely upon local and customary knowledge, and bring about recovery.

### **Section One: Introduction**

What exactly is pandemic entrepreneurship, and what sets pandemic entrepreneurship apart from other forms of crisis entrepreneurship? This paper explores the literature surrounding crisis entrepreneurship and situates pandemic entrepreneurship within the existing crisis literature. In 2020, the pandemic confronted communities across the globe with serious challenges. As the COVID-19 virus spread, not only did many become ill and die, but individuals were faced with difficult decisions of shutting down gatherings, closing places of business, and distancing from loved ones. In short, the years of 2020, 2021, and beyond brought with them many difficulties and hardships. However, entrepreneurship has proven to be an important driving force as communities have confronted and even recovered from the global pandemic. Indeed, during and after most crises, entrepreneurship becomes a driving force for recovery, or at least coping with a new reality. The COVID-19 pandemic presents us with a challenge of understanding what, if anything, makes pandemic entrepreneurship unique among the various types of crisis entrepreneurship.

There has already been some discussion of entrepreneurship during the COVID-19 pandemic. A report from Stephan, Zbierowski, and Hanard (2021) explores 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. Liñán and Jaén (2020) discuss that resilience is the key force that 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. Bacq and Lumpkin (2020) discuss how social entrepreneurship, or market entrepreneurship that addresses societal ills, is very active and indeed necessary during the pandemic. Storr, Haeffele, Hobson, and Lofthouse (2020) specifically examine entrepreneurship during pandemics and compare it with post natural disaster entrepreneurship (discussed further in Section 2). They also examine how social and legal institutions can, in some instances, hinder entrepreneurship while in other instances help it. The New York Times (Casselmann 2021) and Bloomberg (Schrager 2021) have both recently discussed how the pandemic led to more entrepreneurial activity in the US. However, the literature has not yet situated what distinguishes pandemic entrepreneurship from other forms of entrepreneurship.

In this paper, we explore several forms of crisis entrepreneurship and situate pandemic entrepreneurship within the literature as a distinct form, using the framework of Kirznerian ‘identification’ moments and Schumpeterian ‘action’ moments of entrepreneurship. We argue in this paper that different types of crises (like a pandemic or a natural disaster) may affect either the Kirznerian ‘identification’ moment, the Schumpeterian ‘action’ moment, or both. We specifically explore this in the case of a pandemic and find that both moments become more costly to accomplish during a

pandemic. We believe this is an important gap in the literature to fill, as many other forms of crisis entrepreneurship have been deeply explored, yet pandemic entrepreneurship and what makes it unique has yet to be explored and situated within the entrepreneurship literature.

Relatedly, cultures and institutions can all affect different aspects of entrepreneurship, just as crises can. For instance, John and Storr (2018) discuss how Trinidadian entrepreneurs tend to have many Kirznerian ‘identification’ moments in large part because the institutional environment dampens opportunity identification, yet their culture encourages it. Thus, entrepreneurial identification abilities are not lessened, but instead tend to be channeled into extra-market opportunities. In other words, cultures and institutions can affect the types or moments of entrepreneurship that take place. In this paper, we explore whether crises, including pandemics, tend to impede either Kirznerian ‘identification’ moments and/or Schumpeterian ‘action’ moments, or both.

In the next section, we discuss what we call ‘regular’ entrepreneurship – or entrepreneurship during normal times, understood both as the Kirznerian ‘identification’ moment and as the Schumpeterian ‘action’ moment. We then investigate the various forms of crisis entrepreneurship, including necessity entrepreneurship, post-disaster entrepreneurship, long-term conflict entrepreneurship, and financial crisis entrepreneurship. In Section Three, we explore pandemic entrepreneurship and how it compares with the other forms of crisis entrepreneurship. Section Four concludes.

## **Section Two: The Landscape of the Entrepreneurship Literature**

### **A. Regular Entrepreneurship**

In this section, we explore the various types of crisis entrepreneurship. First, though, we begin with a review of ‘regular’ entrepreneurship to help situate what makes the crisis and pandemic forms of entrepreneurship distinct. We contend that all forms of crisis entrepreneurship, including pandemic, are variations of regular entrepreneurship. That is, all forms of crisis entrepreneurship represent differing constraints that entrepreneurs face. The *type* of crisis changes the type of constraints faced by the entrepreneur. More specifically, different crises may affect either the Kirznerian ‘identification’ moment, the Schumpeterian ‘action’ moment, or both.

Kirzner and Schumpeter, two of the most renowned scholars on entrepreneurship, offer distinct yet complementary views of entrepreneurship (Storr, Haeffele-Balch, and Grube 2015). For Kirzner, the entrepreneur is crucial in “driving the process of equilibration” (Kirzner 2009, p. 147). He emphasizes the cognitive aspects of entrepreneurial efforts, such as the entrepreneur’s alertness to profit opportunities. Indeed, alertness is at the heart of Kirzner’s entrepreneur. Kirzner’s entrepreneur recognizes hitherto unrecognized profit opportunities, and performs tasks of buying low and selling high, satisfying previously unsatisfied demand. Kirzner’s form of entrepreneurship is equilibrating, and incessantly moves the economy closer to equilibrium with each entrepreneur’s profit alertness. Thus, the Kirznerian entrepreneur focuses on the initial, ‘identification’ moment of entrepreneurship.

While Kirzner's entrepreneur focuses on "opportunity identification," Schumpeter's focuses on "opportunity exploitation" (Storr, Haeffele-Balch, and Grube 2015, p. 12). Thus, the two entrepreneurs fall at different points of the entrepreneurial process. Once alert to a profit opportunity, Schumpeter's entrepreneur is "defined by the carrying out of new combinations" (Schumpeter 2012 [1934], p. 68). This second moment of the entrepreneurial process thus involves acting upon the previously recognized opportunity. This entrepreneur can introduce a new good or a new method of production, open a new market, find a new source of supply for an input good, or can even bring about a new industry. Schumpeter famously described this as the process of creative destruction – one that is crucial to bringing about economic development, since it continually brings about new goods, services, and entire industries, while phasing out inefficient ones.

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: 583, *emphasis added*) discuss:

*opportunity identification and opportunity exploitation appear to be two essential moments of the entrepreneurial process. Opportunity identification is a cognitive act that occurs entirely in the minds of entrepreneurs as they notice or discover opportunities to earn a profit. Opportunity exploitation is an act or series of acts that occur in the world as entrepreneurs engage in activities that they believe will ultimately be profitable...*

The setting of Kirznerian and Schumpeterian entrepreneurship can be described as happening in 'regular' times, that is, during times where a crisis is not occurring. That

said, the entrepreneur acting in ‘regular’ times still faces immense risk and uncertainty. For instance, entrepreneurs face uncertainty of future market conditions and face risk in betting that the market will respond well to their offered good or service. Even in regular times, entrepreneurs will certainly face various and roadblocks and difficult challenges.

What we argue in this paper is that different types of crises (like a pandemic or a natural disaster) change the constraints facing entrepreneurs. More specifically, different crises may affect either the Kirznerian ‘identification’ moment, the Schumpeterian ‘action’ moment, or both. In the rest of this section, we explore necessity entrepreneurship, post-disaster entrepreneurship, conflict entrepreneurship, and financial crisis entrepreneurship. We examine their similarities and differences, along with the setting of each type and the guiding propositions of each type. Below is Table 1, displaying the setting and theory of the forms of crisis entrepreneurship discussed in this paper.

**Table 1: Types of Crisis Entrepreneurship**

|                | <b>Type of Entrepreneurship:</b>      | <b>Necessity</b> | <b>Post-Disaster</b> | <b>Long-Term Conflict</b> | <b>Financial crisis</b> |
|----------------|---------------------------------------|------------------|----------------------|---------------------------|-------------------------|
| <b>Setting</b> | Occurs over an extended period        |                  |                      | √                         |                         |
| <b>Setting</b> | Confronted with high uncertainty      | √                | √                    | √                         | √                       |
| <b>Setting</b> | Deals with system wide challenges     |                  |                      | √                         | √                       |
| <b>Setting</b> | Must overcome financial obstacles     | √                | √                    | √                         | √                       |
| <b>Theory</b>  | Provides needed goods/services        |                  | √                    | √                         |                         |
| <b>Theory</b>  | Introduces new goods/services         |                  |                      |                           |                         |
| <b>Theory</b>  | Models Resiliency                     | √                | √                    | √                         | √                       |
| <b>Theory</b>  | Is Place-dependent                    |                  | √                    | √                         |                         |
| <b>Theory</b>  | Relies on local & customary knowledge | √                | √                    | √                         |                         |
| <b>Theory</b>  | Brings about recovery/development     |                  | √                    |                           | √                       |

## **B. Crisis Entrepreneurship**

### ***Necessity Entrepreneurship***

The first type of crisis entrepreneurship we discuss is that of necessity entrepreneurship. This form of entrepreneurship is normally undertaken by poorer individuals or those in very desperate situations. This type of entrepreneurship is not systemic or driven by new opportunities, but instead is undertaken merely to sustain life. These entrepreneurs are often referred to as ‘push’ entrepreneurs because they face no

other good alternatives and are consequently ‘pushed’ to start a new venture (see Fairlie and Fossen 2019, Storey 1991, Ritsilä and Tervo 2002). This type of entrepreneurship tends to be countercyclical (Fairlie and Fossen 2019). This contrasts with ‘opportunity’ entrepreneurs who have more stable backgrounds and undertake entrepreneurial ventures not out of necessity, but because they are driven to out of their own desire; this type of entrepreneurship tends to be pro-cyclical (Fairlie and Fossen 2019).

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 necessity entrepreneurship (Reynolds et al. 2001). The countries with the highest amounts of necessity entrepreneurship were India, Mexico, and Brazil. Moreover, necessity entrepreneurs tend to enter the service sector (like retail, hotels, and health care) more so than the business sector (like financial services, consulting, and real estate), since the service sector tends to more immediately accessible and have a lower cost of entrance (Reynolds et al. 2001). On the other hand, opportunity entrepreneurs typically enter the business sector more so than the service sector.

As we display in Table 1 above, necessity entrepreneurship’s setting is typically in highly uncertain environments, and these entrepreneurs face intense financial stress, although this financial stress is not system wide but more likely a local or individual issue.<sup>12</sup> We also advance that necessity entrepreneurs model resiliency, as they must face highly uncertain contexts and persist. As Fairlie and Fossen (2019) note, necessity entrepreneurs are often acting during counter-cyclical movements. Last, these

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<sup>12</sup> For instance, a job loss qualifies as a financial stressor, and is often the starting point for a necessity entrepreneur (see Fairlie and Fossen 2019).

entrepreneurs rely upon customary knowledge. They must 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. Relatedly, they must also understand the local entrepreneurial climate, and whether it is friendly or unfriendly to new startups (Reynolds et al. 2001).<sup>13</sup> Much of this involves the entrepreneur needing to rely upon customary, local knowledge.

In terms of Kirznerian and Schumpeterian entrepreneurship ‘moments’, the Schumpeterian moment seems especially hindered in the necessity entrepreneurship context. That is, entrepreneurs facing extreme poverty and uncertainty on a long-term basis can likely identify (in a Kirznerian sense) the needs of a person or community. That is, the entrepreneur, facing such conditions in the long run, can recognize the needs of his or her community and can recognize what types of goods and services may fill those needs. However, acting upon those needs (in a Schumpeterian sense) becomes much more difficult than it would be in ‘regular’ times. Consider an entrepreneur facing extreme uncertainty of where his next meal will come from, whether he will have work that week, and whether corrupt local officials will seize his profits. This makes the ‘action’ moment of entrepreneurship extremely difficult since there are significant financial and health factors barring the entrepreneur from such action.

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<sup>13</sup> For instance, in some places it may take months, if not years, to get permits, licenses, and other necessary paperwork to begin a business. High levels of corruption may necessitate paying bribes to local officials to receive such permits, thus creating high barriers to entrepreneurial entry.



### *Natural Disaster Entrepreneurship*

Another form of crisis entrepreneurship is that of natural disaster entrepreneurship (see Chamlee-Wright 2013, Chamlee-Wright and Storr 2010, Storr, Grube, and Haeffele-Balch 2017, Storr, Haeffele-Balch, and Grube 2015). Of course, this entrepreneurship occurs in the midst of and/or after a natural disaster, such as a hurricane or a tsunami. These entrepreneurs are often ‘pushed’ into situations, so they could classify as a type of necessity entrepreneur. The setting is an uncertain context, typically for a brief amount of time (a few days and usually no more than several months). Financial obstacles certainly face some but are not system wide. For instance, poorer individuals may be unable to rebuild after disasters, especially in regions where flood, earthquake, hurricane, and other disaster insurance simply doesn’t exist. That said, others may have access to insurance policies or do not face as large of a financial setback from the disaster. And a disaster usually only affects smaller regions like cities, not an entire country or the entire world.

These entrepreneurs are motivated by a connection to their communities, or what is sometimes referred to as ‘high place attachment’ (see Kibler et. al. 2015, Lewicka 2005, Hallack et. al. 2012). This often motivates entrepreneurs who are embedded within their community to act following a disaster. Importantly, entrepreneurs embedded within their communities have both social as well as economic motivations. They want to see their communities rebuild and recover from a natural disaster, and these local entrepreneurs likely possess the requisite knowledge to assess how they might contribute to community rebound. That is, disaster entrepreneurs employ tacit knowledge about the community in order to help the community recover. These goals are often in addition to,

and 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 returning and rebuilding, the community would cease to exist. Embedded entrepreneurs leverage their relationships to navigate the extreme uncertainty that characterizes the post-disaster context.

As Monllor and Murphy (2017) detail, resilience is a driving force of natural disaster entrepreneurs. Indeed, while entrepreneurs during ‘regular’ times often are deterred by a fear of failure, entrepreneurs during disaster scenarios do not 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). Stated another way, the costs of failing an entrepreneurial endeavor during a disaster scenario are so high that failure of the entrepreneur becomes less likely as the entrepreneur sees recovery as the only way out.

Consider the case of Hurricane Sandy in 2012: it inflicted 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 recovered quite well, despite having many homes destroyed in the community, no power for several weeks, severe flooding, and food, water and gasoline shortages (ibid: 889). As Storr et. al. (ibid, 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 centres, private schools, an ambulance service, and a civilian patrol.

Thus, the community already had large amounts of cohesion leading up to the disaster. Being so well equipped to handle the daily needs of the community, rabbis and community leaders across the area were able to quickly coordinate needs of their members. They were able to utilize on-the-ground knowledge and provide the correct scale of necessities. 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” (ibid, p. 888). So, this system allowed post-disaster entrepreneurs to use local, customary knowledge to thrive. For example, the same rabbi

started to receive information about families in need in the days after the storm. At first, he would find out about the needs of community members on an ad hoc basis. He soon realized that he required a way to better organize his information to better match donated goods with the needs of the community. He helped to create a spreadsheet with names, contact information and a list of resources needed by those in Bayswater who were affected by the storm. According to Rabbi Kruger, 115 families had experienced significant damage. He then started to gather information about what each individual and family needed.

The entrepreneurship of Rabbi Kruger, who was able to use local knowledge, allowed the Jewish community in the area to stay safe, receive basic necessities, rebuild relatively quickly, and, importantly, maintain morale within the community. Thus, these 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, the entrepreneur, like Rabbi Kruger, can identify the needs of his

community relatively easily especially depending upon the levels of cohesion in the community leading up to the disaster. After Hurricane Sandy, it was relatively easy to recognize that the electricity was out in certain neighborhoods or that water lines were broken in certain areas. Just like necessity entrepreneurs, natural disaster entrepreneurs can identify the needs of their community.

However, the Schumpeterian action moment becomes much more difficult, viewing this disaster as an increase in the cost of action. While entrepreneurs certainly do act in this setting, as shown with Rabbi Kruger's actions, it becomes more difficult to do so as disaster strikes, community members leave the area, information is acutely dispersed as to what community members need what types of goods and services, and as financial obstacles become extremely large. Community cohesion, as seen in the case of the case study discussed above, did help lower the cost of action after disaster. Sometimes, though, the cost of action to help the community recover becomes too large that community entrepreneurs instead lobby the government for aid instead of providing it locally (see Chamlee-Wright and Storr 2011) for a case study of this happening following Hurricane Katrina). It seems that the costs of action can be decreased if there is preexisting community cohesion. However, if such community cohesion does not exist, Schumpeterian action becomes much more costly. This, as discussed later, is important to keep in mind in the context of a system-wide pandemic.

### ***Long-Term Conflict Entrepreneurship***

Long-term conflict entrepreneurship is another form of crisis entrepreneurship. The setting of this type of entrepreneurship is typically extremely uncertain for a long

period of time – examples could include a perpetual civil war or a genocide. Often, the entrepreneurs and others living within this setting face constant fear, and the entrepreneurs themselves face large financial obstacles to their entrepreneurship. This entrepreneur must perceive associated risks, dangers, and rewards with entrepreneurial actions (Bullough, Renko, and Myatt 2014), which strikes notes of the Kirznerian entrepreneur who must be alert to his own perceptions of the marketplace and any unrealized demand. Unlike natural disaster entrepreneurs, long-term conflict entrepreneurs do not bring about recovery. Instead, they allow those around them to continue coping with the current situation by providing necessary goods and services in relatively efficient ways.

This type of entrepreneur, like a natural disaster entrepreneur, is place dependent as they must have intricate knowledge of local context and situations to be able to affect meaningful change (Cheung and Kwong 2017). Relatedly, they can tap into a network of people they already have ties with following a conflict like a war to help accomplish entrepreneurial ends (Cheung and Kwong 2017), just as Rabbi Kruger was able to do after Hurricane Sandy. These entrepreneurs are place dependent and have a network of ties, which means they have market knowledge of local resources and of local conditions of supply and demand, and, they also have local customary knowledge, knowing specific rules and customs and being careful to mind these customs, especially if there is a risk of religious or cultural persecution.

Unlike natural disaster entrepreneurs, though, long-term conflict entrepreneurs face system-wide challenges. Since war likely affects an entire country or region, not

neighborhoods or cities, it tends to affect entrepreneurs throughout the system. As Bruck, Naude, and Verwimp (2011) highlight, there are often two distinct targets in long-term conflicts: resources or people. While most conflicts involve a bit of both, they arguably have one clear mission in mind. Bruck, Naude, and Verwimp (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 use of landmines against 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, Renko, and Myatt (2014) found that two major traits were frequent in these long-term conflict entrepreneurs, and in fact reinforced each other. First was resiliency, or the entrepreneurs' ability to cope with such extreme circumstances and nevertheless continue providing needed goods and services, rather than giving up. Second, they found that entrepreneurs all had self-efficacy, or a belief in one's ability to organize and execute entrepreneurial plans (Bullough, Renko, and Myatt 2014). In tumultuous situations, self-efficacy becomes rare, as does resiliency, thus making these entrepreneurs so notable. Both traits were found to be positively correlated with entrepreneurial efforts.

When scenarios do become so severe and uncertain, entrepreneurial intentions often are hampered and diminished (Bullough, Renko, and Myatt 2014). Stated another way, in some instances, the costs of entrepreneurship simply become too high, crowding out entrepreneurship that would have happened in more certain or less severe scenarios.

While Bullough, Renko, and Myatt (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 Bruck, Naude, and Verwimp (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.*

Thus, while these entrepreneurs provide necessary goods in the midst of pernicious conflicts, often times since these conflicts are long-term, there is likely to be lower investment and higher firm exit, which has a negative impact on entrepreneurial actions.

In the context of the Kirznerian and Schumpeterian moments of entrepreneurship, the long-term conflict entrepreneur can understand what types of goods and services are needed because he exists in this situation for extended periods of time and is able to discern what could ameliorate the situation or help those in the community. However, acting on this recognition becomes more difficult in this scenario, especially considering the discussion of on long-run conflict and its negative impact on entrepreneurial action (Bruck, Naude, and Verwimp 2011, p. 163). Consider an entrepreneur during a country-wide genocide. While he may have resiliency and understand what types of goods and services could best aid those around him, acting upon such knowledge becomes extremely difficult if he fears for his life. Even if he is not the target of such genocide, it becomes difficult to provide needed goods and services to those who are targets of the genocide. Consider the case of Nazi Germany, in which Jewish businesses were

boycotted and eventually seized during the period of “Aryanization.” Non-Jewish entrepreneurs could not have business dealings with Jewish community members, nor could Jewish entrepreneurs have business dealings with non-Jewish community members. The racial and cultural segmentation of the market creates large barriers for entrepreneurial action, and of course this difficulty pales in comparison to the threat of genocide. Thus, like the previous cases explored, Kirznerian opportunity recognition can happen in this scenario, but Schumpeterian action becomes much more difficult and costly to take in the context of a long-term conflict.

### ***Financial Crisis Entrepreneurship***

Last in our discussion of general crisis entrepreneurship is financial crisis entrepreneurship. Financial crisis entrepreneurship happens during a period of high uncertainty, when there is either a recession or depression and increasing unemployment. Entrepreneurs within these scenarios are likely faced with financial difficulties, at least more so than in regular times. Thus, the entrepreneurs acting within this space are likely doing so out of necessity, not out of opportunity (Fairlie and Fossen 2019). While financial crises tend to be system wide, spanning entire countries and even large parts of the globe, they often are not over long periods of time. Recessions and depressions can be severe for several months and have some effects for several years, but often do not continually occur for extended periods of time.

Financial crisis entrepreneurship has been studied extensively. Indeed, the literature is divided and inconclusive whether financial crises spur entrepreneurship or hamper it (see Fairlie and Fossen 2019). On the positive side, several authors have



discussed the beneficial effects financial crises can have on entrepreneurship. Pereira (2019) argues that innovation and entrepreneurship, when examined through an evolutionary, market-process lens, help overcome economic crises and long business cycles. She emphasizes that crises necessitate entrepreneurship and make it even more important to help us recovery financially. Peris-Ortiz, Fuster-Estruch, and Devece-Carañana (2013) utilize Global Entrepreneurship Monitor data and find a positive and significant relationship between entrepreneurs and entrepreneurial performance during times of economic crisis. It is entrepreneurs' unique, tacit knowledge and their (Kirznerian) opportunity perception that allows them to perform so well despite operating during a crisis. Devece, Peris-Ortiz, and Reuda-Armengot (2016) study Spain during the 2008 recession and find that during recessions, necessity-driven entrepreneurship is ineffective while innovation and opportunity recognition can lead to more success.

In contrast to this discussion, other authors have found that overall, financial crises tend to decrease the amount of entrepreneurship and hamper entrepreneurial intentions. Shane (2011) studied the Great Recession in the US and found that it had a negative impact on entrepreneurship. He specifically found that self-employment fell, employer firms exited the market, and firm formation declined. Brennan and McHugh (1993) find that the 2008 Great Recession adversely affected small business owners, decreasing rates of long-term business survival. Moreover, it caused business owners to have more stress, lower self-confidence, and lower independence if they did manage to survive the crisis. González-Pernía et al. (2018) also examine Spain during the 2008 crisis and finds that entrepreneurship generally is pro-cyclical, as Spanish

entrepreneurship declined during the Great Recession in Spain and led to a lower propensity to start new firms.

In the context of the Kirznerian and Schumpeterian moments, Kirznerian moments of entrepreneurship are not discussed much in literature around financial crises, although as discussed above, Devece, Peris-Ortiz, and Reuda-Armengot (2016), in their study of Spain during the 2008 recession, find that opportunity recognition (or a Kirznerian ‘identification’ moment) can lead to success. While it seems clear that entrepreneurs, much like in other crises, can identify opportunities to fill latent demand, what seems less clear is whether Schumpeterian action becomes amplified or hindered. The literature is divided on this point, as discussed above. It seems plausible, though, that financial crises much like other crises create higher costs of action. Unsurprisingly, this has negative impacts on entrepreneurial actions.

In the following section, we discuss pandemic entrepreneurship and how it compares with the forms of crisis entrepreneurship outlined above.

### **Section Three: Pandemic Entrepreneurship**

Pandemic entrepreneurship, as displayed in Table 2 below, has elements of all the other forms of crisis entrepreneurship. What we see as our main contribution from this paper is showing how pandemic entrepreneurship shares characteristics of other forms of crisis entrepreneurship, yet because it has features of so many different features, it is itself a unique form of crisis entrepreneurship. Importantly, these entrepreneurs, like the ones above, simply face differing constraints and represent a variation of ‘regular’

entrepreneurs. We will go through each trait of pandemic entrepreneurship listed in Table 2, in turn, and present evidence from the COVID-19 pandemic. We begin with the setting of pandemics and pandemic entrepreneurship then turn to a theory of pandemic entrepreneurs.

**Table 2: Pandemic Entrepreneurship**

|                | <b>Type of Entrepreneurship:</b>      | <b>Necessity</b> | <b>Post-Disaster</b> | <b>Long-Term Conflict</b> | <b>Financial crisis</b> | <b>Pandemic</b> |
|----------------|---------------------------------------|------------------|----------------------|---------------------------|-------------------------|-----------------|
| <b>Setting</b> | Occurs over an extended period        |                  |                      | √                         |                         | √               |
| <b>Setting</b> | Confronted with high uncertainty      | √                | √                    | √                         | √                       | √               |
| <b>Setting</b> | Deals with system wide challenges     |                  |                      | √                         | √                       | √               |
| <b>Setting</b> | Must overcome financial obstacles     | √                | √                    | √                         | √                       | √               |
| <b>Theory</b>  | Provides needed goods/services        |                  | √                    | √                         |                         | √               |
| <b>Theory</b>  | Introduces new goods/services         |                  |                      |                           |                         | √               |
| <b>Theory</b>  | Models Resiliency                     | √                | √                    | √                         | √                       | √               |
| <b>Theory</b>  | Is Place-dependent                    |                  | √                    | √                         |                         | √               |
| <b>Theory</b>  | Relies on local & customary knowledge | √                | √                    | √                         |                         | √               |
| <b>Theory</b>  | Brings about recovery/development     |                  | √                    |                           | √                       | √               |

### **A. The Setting of Pandemic Entrepreneurship**

The setting of pandemic entrepreneurship is important to establish as it is a unique setting. First, pandemic entrepreneurship occurs over a long period of time due to the nature of pandemics, similar to long-term conflict entrepreneurship. Pandemics typically

last for at least a year, if not years, with waves of the virus hitting depending upon weather and region. COVID-19 can cause chronic health issues, where those with the virus could have long lasting effects; moreover, the virus often mutates, and these mutations lead to a persistent health issue. Historically, in the 1918 flu pandemic when vaccines were unavailable, the pandemic lasted in some places until 1921.<sup>14</sup> The COVID-19 pandemic has lasted beyond two years, with shutdowns, mask orders, and other guidance changing as the waves of COVID-19 intensify or calm. With a long crisis, long-term entrepreneurship is often necessitated. That is, solutions that will stand the test of time are more likely to succeed than short, stop-gap solutions. This is, again, comparable to long-term conflict entrepreneurs. Recall that long-term conflict entrepreneurs are those who are resilient despite the long-term crisis. While we address resiliency below, it is important to remember that pandemic entrepreneurs also must be resilient in no small part due to innate challenges of a long-term crisis, which is far different in scale and scope to a short-term crisis.

Relatedly, pandemic entrepreneurs face high uncertainty, shown in Table 2. This characteristic is shared with necessity, post-disaster, and long-term conflict entrepreneurship. High uncertainty of course plagues most crises, though as pandemics tend to be more infrequent than, say, a hurricane, and often carry greater variance of qualities (like symptoms and necessary public health responses), they might bring with them the some of the highest uncertainty out of the crises discussed here. Consider a state's emergency preparedness for natural disasters and for pandemics. Often, states that

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<sup>14</sup> See <https://www.abc.net.au/news/health/2020-09-08/covid-coronavirus-how-do-pandemics-end-and-how-will-this-one-end/12596954>

routinely face crises like hurricanes or earthquakes shape their life around these disasters, at least in small 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 areas where those are frequent. While these methods are not foolproof, and while natural disasters often destroy many well-laid plans, people generally know how to prepare and what best steps to take. With pandemics, however, the public health community might prepare with briefings and national stockpiles, but most individual citizens do not care to prepare because of the small probability and low infrequency that a pandemic will occur.<sup>15</sup> Consequently, when pandemic strikes, as was the case in 2020, many were uncertain 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.

The third characteristic is that pandemics present system wide challenges. Financial crises and long-term conflicts similarly are characterized by system wide challenges, like an economic depression or a civil war. Pandemics are system wide events solely because they spread across entire cities, states, and countries, and inevitably across 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) began to spread through the entire world, leading to a summer 2021 surge of the delta variant and a winter 2021 surge of the omicron variant. Thus, the initial

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<sup>15</sup> There is also the public choice concern here that politicians will underprepare for and underinvest in safety measures for pandemics since they are such rare events, unlikely to happen during an individual politician's term. While a governor of, say, Louisiana has incentives to prepare for hurricanes, he likely does not have incentives to prepare (and fund) pandemic preparation efforts.

pandemic and its following variants led to system wide challenges that presented entrepreneurs with not only local challenges to solve, but also with country- and world-wide ones.

Last, pandemic entrepreneurs must overcome financial obstacles. Financial obstacles are present in all types of crisis entrepreneurship discussed in this paper – necessity, post-disaster, long-term conflict, and financial crisis. 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 civil war). Pandemics bring about such financial obstacles largely because they necessitate limiting or closing places of business. Due to this, workers are laid off or furloughed. Moreover, those who become ill are unable to work, and hourly workers miss valuable shifts and salaried workers may run out of sick days. The New York Times (2021) estimated that 30 percent of new entrepreneurs in 2020 were unemployed when they started their business, giving more credence to both the understanding of ‘push’ entrepreneurship and financial obstacles facing such entrepreneurs. Stated another way, entrepreneurs in this setting 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).<sup>16</sup>

Knowing these details, we argue that pandemics necessarily hinder Kirznerian moments of entrepreneurial identification, largely due to the shifting situations and

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<sup>16</sup> Not noted in Table 2 but important to remember is that pandemics are the only form of crisis examined in this paper that necessitate physical distancing. This will greatly impact entrepreneurship, which we discuss towards the end of this section.

extremely high uncertainty. While other crises have large amounts of uncertainty, often the situation is known to the entrepreneur (or becomes known relatively quickly), which contrasts with pandemics. That is, the entrepreneur can stay informed on the risks from a hurricane or a financial crisis. Even if community members move out of town following, say, a hurricane, the entrepreneur can be alert to opportunities for how to encourage community members to return and rebuild (Chamlee-Wright and Storr 2009). However, pandemics have shifting conditions throughout the crisis, whether it be due to shifting or confusing government mandates, new variants emerging which necessitate changes in action, and differing techniques and new, emerging scientific knowledge that can be used to mitigate the effects of the pandemic. Moreover, different areas have different orders and regulations, so an entrepreneur operating in interstate (or even intercounty) commerce may face different and shifting regulations, depending upon time and place. Consider that in the first several months of the COVID-19 pandemic, government officials discouraged mask usage by the general public. Thus, the ability for entrepreneurs to recognize mask-making as a profitable opportunity was hindered. Moreover, with the rise of the delta and omicron variants in mid-to-late 2021, entrepreneurs who may have previously discontinued or cut back on mask-making may have needed to ramp up production of masks again. The ever-changing conditions of the virus and mandates from the government ultimately served to hinder Kirznerian, entrepreneurial opportunity recognition.

## **B. A Theory of Pandemic Entrepreneurship**

We now discuss our theory of pandemic entrepreneurs, or what characteristics make these entrepreneurs distinct and what characteristics they share with other crisis entrepreneurs. First, the pandemic entrepreneur provides *necessary* goods and services, and, relatedly, they introduce *new* goods and services. On the first point, pandemic entrepreneurs share this quality with regular, post-disaster, and long-term crisis entrepreneurs. Necessary goods and services include things like food and water and other disaster-related items for staving off 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.

Indeed, we saw this to be the case during the COVID-19 pandemic. Entrepreneurs provided needed food to communities hit especially hard by the pandemic and layoffs. One community in Michigan provided free minor car repairs, lunch, and a COVID-19 vaccine in a ‘one-stop-shop’ event to provide needed goods and services to community members.<sup>17</sup> A church in Norfolk created four ‘pop-up’ locations to provide meals, doubling the number of meals it had provided in previous years.<sup>18</sup> Before the pandemic, no food distribution groups existed in the Bethesda-Chevy Chase area (just outside of Washington, D.C.). One county council member, however, pulled leaders together from local nonprofits, commercial businesses, and religious groups to change that during the

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<sup>17</sup> See <https://www.clickondetroit.com/all-about-ann-arbor/2021/08/04/saturdays-pull-over-prevention-clinic-to-offer-car-repair-food-pantry-covid-19-vaccines/#/>

<sup>18</sup> See <https://www.13newsnow.com/article/news/local/church-in-norfolk-gets-ready-to-feed-more-people-this-thanksgiving-amid-rise-in-food-insecurity/291-b8842acc-9443-4a04-be79-1044c482dc8f>



pandemic.<sup>19</sup> While food insecurity in that region remained relatively high, these groups stepped in to at least make a marginal difference. Johns Hopkins University, in conjunction with local religious organizations and national food delivery services, launched the COVID-19 Food Access Initiative to provide food to families acutely impacted by COVID-19.<sup>20</sup>

And, entrepreneurs provided pandemic-related goods like masks, hand sanitizer, and medical devices. Thousands of individuals created hand sanitizer, including breweries who temporarily stopped or decreased alcohol production to instead create sanitizer amid shortages.<sup>21</sup> Others learned how to sew masks and donated or sold them to local hospitals.<sup>22, 23</sup> 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, 3-D printed ventilator valves, allowing patients the lifesaving access they needed.<sup>24</sup> Companies like GM converted production lines for automobiles into production lines for ventilators.<sup>25</sup> 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.

On the second point, the pandemic entrepreneur introduces new goods and services. The pandemic entrepreneur is the only crisis entrepreneur to do so, and of

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<sup>19</sup> See <https://www.npr.org/2020/09/27/917326212/in-affluent-maryland-county-pandemic-exacerbates-food-insecurity>

<sup>20</sup> See <https://hub.jhu.edu/2020/04/24/food-access-initiative-covid-19/>

<sup>21</sup> See <https://parade.com/1011922/jerylbrunner/distilleries-making-hand-sanitizer/>

<sup>22</sup> See <https://www.businessinsider.com/people-are-making-diy-face-masks-amidst-shortages-due-to-coronavirus-2020>.

<sup>23</sup> We note, however, that this production of course becomes more difficult due to the uncertainty of conditions, as discussed above.

<sup>24</sup> See <https://www.nytimes.com/2020/03/22/opinion/ventilators-coronavirus-italy.html>.

<sup>25</sup> <https://www.themanufacturer.com/articles/flexing-those-3d-printing-muscles/>

course, so too does the ‘regular’ entrepreneur. Typically, crisis entrepreneurs as outlined above do not introduce new goods and services, but instead find ways to simply integrate within an already-existing economy to survive. For instance, as discussed above, necessity entrepreneurs often join the service sector. But pandemic entrepreneurs must adapt to a world with entirely new contexts, where in-person contact is limited, distancing in some places is mandated, and an entirely new way of living is necessitated.

Many new goods and services were introduced during the pandemic. While we detail these below, it is worth noting here that 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.<sup>26</sup> Airlines like United devised new airflow ventilation systems that not only recirculate air every 2-3 minutes but also remove 99.7% of viruses and bacteria.<sup>27</sup> Restaurants, shopping centers, and other market meeting places also installed similar systems, not only making safer environments for consumers, but allowing commercial activity to resume. Some restaurants even installed table-side air purifiers.<sup>28</sup> Technology has undoubtedly served a large role in allowing for pandemic

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<sup>26</sup> See <https://www.uber.com/newsroom/moving-more-of-what-matters-with-delivery/>

<sup>27</sup> See <https://hub.united.com/2020-07-20-united-airlines-to-maximize-ventilation-system-during-boarding-and-deplaning-2646439262.html>

<sup>28</sup> See <https://www.chicagotribune.com/coronavirus/ct-restaurants-air-filtration-coronavirus-20200922-niupyrkw7fhlzh6uul5hzyd2am-story.html>

entrepreneurship to thrive (see Zahra 2021). All of these services came about because pandemic entrepreneurs faced unique constraints: crowds must be minimized, distancing is likely mandatory, and a virus threatened business and commercial activity. Given these constraints, entrepreneurs found ways around the threats posed by COVID-19 and devised new, entrepreneurial goods and services. Again, this list is by no means exhaustive, but it is important to recognize that pandemic entrepreneurs introduce new goods during a pandemic, unique among the crisis entrepreneurs.

Third, we argue that pandemic entrepreneurs model resiliency, like necessity, post-disaster, long-term conflict, and financial crisis entrepreneurs. Indeed, this is one area where all crisis entrepreneurs embody the same trait of resiliency. When faced with any crisis, entrepreneurs that are to survive (and perhaps even thrive) must have resiliency. For instance, during post-disaster scenarios, Monllor and Murphy (2017) find that resilience is a driving force of natural disaster entrepreneurs. And in long-term conflict scenarios – perhaps some of the most difficult scenarios in which to be entrepreneurial – Bullough, Renko, and Myatt (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. Castro and Zermeño (2020) find specific resilience traits that would help entrepreneurs during a pandemic, such as attitudes adopted towards the crisis and human and social capital already existing prior to the crisis. A survey and report by Kings Business School at King's College London (Stephan et al. 2021) found that many entrepreneurs had

resilience, 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.

There have been plenty of examples of resilient 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.<sup>29</sup> 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

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<sup>29</sup> See <https://www.irishtimes.com/business/ey-entrepreneur-of-the-year-award-don-t-listen-to-naysayers-prove-them-wrong-1.4639835>

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.<sup>30</sup> Of course, as is true with the rest of this paper, these anecdotes only represent a small fraction of all the resiliency displayed by pandemic entrepreneurs across the globe. But we do believe the anecdotes discussed help highlight the resiliency that is innate and necessary to pandemic (and general crisis) entrepreneurship.

The fourth and fifth characteristics are related. We argue that pandemic entrepreneurs are place dependent, and that they also rely upon local and customary knowledge. Like other crisis entrepreneurs (post-disaster and long-term conflict), pandemic entrepreneurs act most keenly because of the local knowledge they possess to help mitigate or solve the crisis. Place dependent entrepreneurs are often motivated by a desire to see their hometown (or neighborhood, or church group, for example) return, recover, and thrive following a disaster (see Chamlee-Wright and Storr 2007, Chamlee-Wright and Storr 2011, and Cheung and Kwong 2017). For instance, in COVID-19, we saw many church leaders attempting to keep their congregations together, even if it wasn't for in-person services. There were 'drive-in' church services where individuals stayed in their cars and tuned into a radio station, like a drive-in movie. There were drive-by services, where individuals could receive Communion through their car windows<sup>31</sup>

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<sup>30</sup> See <https://voices.ilo.org/stories/a-woman-entrepreneur-in-peru-thrives-with-resilience-and-empathy>

<sup>31</sup> See <https://www.episcopalnewsservice.org/2020/04/08/drive-thru-communion-remote-consecration-covid-19-sparks-new-eucharistic-concepts-and-theological-questions/>

(some even receiving holy water via spray bottle<sup>32</sup>). Relatedly, gyms led live, at-home workouts to keep members connected to their usual classes. While these moves are likely profit-oriented, remember also that place-based entrepreneurs are motivated beyond profits, and instead, or in addition, care about the ultimate success of their community. 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.<sup>33, 34</sup> Perhaps they made small profits from the ventures, or receive positive publicity, but in addition, these initiatives aimed at keeping the community together and boosting morale during a crisis.

To be a successful, place dependent entrepreneur, though, one must have local knowledge and customary knowledge. Interesting, though, is that post-disaster entrepreneurs do not face a system-wide crisis, while others like long-term conflict and pandemic entrepreneurs do. Thus, post-disaster entrepreneurs are necessarily already existing within the hard-hit area, such as Rabbi Kruger following Hurricane Sandy. However, in the midst of or following a disaster like a pandemic, entrepreneurs who understand what community members require like what types of food, clothing, and other essential items is crucial, even though these crises are system wide. Thus, pandemic entrepreneurs are unique in that they face system-wide challenges yet also must employ

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<sup>32</sup> See <https://www.cbsnews.com/news/detroit-priest-holy-water-squirt-gun-social-distancing/>

<sup>33</sup> 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>

<sup>34</sup> 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>

local knowledge. This perhaps adds difficulty to the pandemic entrepreneur's Schumpeterian 'action' moment, since they face worldwide challenges that are largely out of their control, yet they can act entrepreneurially at the local level.

As Hayek (1945) detailed, knowledge is dispersed and tacit, and the price mechanism helps coordinate and aggregate such knowledge. What is important about this point for local entrepreneurs and leaders, though, is that they have access to information that others do not, whether it be different community members or government disaster relief support. 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 need only tweak production to make sanitizer instead of alcohol. They were already equipped not only with the necessary physical capital, but also with human capital and the knowledge of how to operate such processes. Another related example is the previously mentioned 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. Perhaps an even better and simpler example is that of local food banks, churches, and community organizations, who knew which neighborhoods and apartment complexes were most at-risk of hunger. As mentioned previously in this paper, many organizations targeted communities at-risk of hunger due to the pandemic. Due to the local knowledge of community members that these entrepreneurs possessed, they were able to help the communities that needed it most in the quickest, most efficient manner possible.

Not only is local knowledge important for pandemic entrepreneurs, but so too is customary knowledge. When distancing and shut-down orders went into place, these often overlooked religious and cultural values that are important to many communities. When these orders attempted to work with, and not work against, such religious communities, we often saw them succeed. For instance, when churches were still allowed to have services, but they were mandated to be socially distanced services, church leaders and entrepreneurs came up with creative solutions to have drive-by services and other solutions described above. However, when the orders worked against such communities, they often went awry. For instance, when all religious gatherings were banned or severely limited to small numbers, like New York's order against synagogue gatherings of ten or less,<sup>35</sup> entrepreneurs were unable to come up with creative solutions due to governmental barriers. Hence, many Orthodox Jewish members, especially in New York City, broke many of the religious ordinances and gathering bans since they did not allow for any leeway or community voice. When entrepreneurs are able to bridge the gap between communities and governments is when we see preventative measures work best. As Storr, Haeffele, Hobson, and Lofthouse (2020) argued, entrepreneurship during pandemics can be encouraged or impeded by government actions. Allowing entrepreneurship to thrive, while still allowing government to do its job and enforce necessary restrictions, is a hard line to draw. Further research should investigate areas where government is successful

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<sup>35</sup> Orthodox services often require more than ten people, so this order did not encapsulate the customary and cultural understandings of the religion. See <https://spectrumlocalnews.com/nys/central-ny/news/2020/05/20/cuomo-says-religious-gatherings-can-resume-with-up-to-10-people>



and unsuccessful at matching cultural norms with pandemic policies to inform future actions.

Last, we argue that pandemic entrepreneurs can bring about 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. Entrepreneurs of this category were particularly good at figuring out ways (1) to allow for businesses to thrive electronically or socially distanced, and later, (2) to allow business to resume in-person capacities. On the first point, we have discussed how gyms and religious services that moved online. So too did schooling, seminars other intellectual programming, concerts, cooking classes, and many more activities.<sup>36</sup> Moreover, food and grocery delivery services became much more common. On the second point, we have discussed how entrepreneurs designed, for example, new ventilation systems. Moreover, stores and business centers devised distancing guidelines, such as socially distanced concerts and redesigned check-out lanes to maximize distancing. Both aspects – moving to virtual alternatives and enabling safe gatherings in-person – allow for economic recovery by allowing business to resume activity, even if this activity is not what it used to be prior to the pandemic.

More importantly, pandemic entrepreneurs also bring about recovery from the actual virus. At the beginning of the pandemic, scientists worked hard to determine what

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<sup>36</sup> However, see Chapter One of this dissertation for an explanation as to why virtual spaces are imperfect substitutes for in-person spaces.

medicines might help protect against COVID-19 or treat it once inoculated. For instance, Remdesivir and Regeneron were initially trialed, even on then-President Trump.<sup>37</sup> According to the NIH, Remdesivir did end up showing some benefits in the treatment of COVID-19, as did Regeneron.<sup>38</sup> Remdesivir is now FDA approved for adults and children above twelve being treated in the hospital. This medical trial and error forwarded the scientific process and helped scientists narrow the paths forward for what types of medicines might prove useful for sick patients. Then, in another step forward, entrepreneurial scientists devised 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, entrepreneurial scientists 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<sup>39</sup>). Indeed, vaccines became available in the US for frontline healthcare workers less than a year into the pandemic, which is a scientific feat not seen in past pandemics. Just over a year into the pandemic in the US, 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 US, although others like the Russian and Chinese developed vaccines are available in other parts of the world. In the

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<sup>37</sup> See <https://www.npr.org/sections/latest-updates-trump-covid-19-results/2020/10/02/919664729/trump-receives-experimental-drug-for-covid-19-heres-what-doctors-are-watching-fo>

<sup>38</sup> See <https://www.nih.gov/news-events/nih-research-matters/final-report-confirms-remdesivir-benefits-covid-19> and <https://www.reuters.com/business/healthcare-pharmaceuticals/regeneron-covid-19-therapy-cuts-deaths-among-hospitalised-patients-who-lack-2021-06-16/>

<sup>39</sup> See <https://www.pfizer.com/news/press-release/press-release-detail/pfizers-novel-covid-19-oral-antiviral-treatment-candidate>

US, there is Pfizer-BioNTech, Moderna, and Johnson&Johnson/Janssen. All three vaccines were developed in very short amounts of time, are very effective, and were all created in part due to entrepreneurial efforts. Most notably 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 COVID-19 pandemic inevitably led to their ability to so quickly develop a successful vaccine once COVID-19 struck. These entrepreneurs were instrumental in bringing about the final chapter of COVID-19.

Even though entrepreneurs were extremely successful, they faced much higher costs of action than they would in ‘regular’ times. While it seems clear that entrepreneurs were able to act throughout the pandemic, our discussion here should not be read as a discussion of how easy entrepreneurship was during the pandemic. By all accounts, crises including global pandemics raise the cost of action, yet despite this, entrepreneurs find ways to provide necessary goods and services and even bring about recovery. Not noted in Table 2 but equally important to keep in mind about pandemic entrepreneurship action moments is that pandemics necessitate physical distancing. All other forms allow for entrepreneurs to be working in tandem with community members, government officials, and so forth. Pandemic entrepreneurs must maintain physical distance and likely coordinate many of these efforts without interacting face-to-face with community

members and other important players. As discussed above, the varying conditions and extreme uncertainty hindered the Kirznerian ‘identification’ moments of entrepreneurs, and it would also seem to be the case, like in all other crises outlined above, that pandemics hinder Schumpeterian ‘action’ moments, as well. That is, pandemics raise the cost of entrepreneurial action. Thus, we argue that while other forms of crisis entrepreneurship only face significant setbacks to Schumpeterian ‘action’ moments, pandemics cause significant setbacks both to Kirznerian ‘identification’ moments and Schumpeterian ‘action moments, making this a distinct form of entrepreneurship.

#### **Section Four: Conclusion**

This paper has advanced that pandemic entrepreneurship is a unique form of crisis entrepreneurship that shares characteristics with several different forms of crisis entrepreneurship. We argue that both Kirznerian and Schumpeterian entrepreneurial moments are hindered during pandemics. Despite this, pandemic entrepreneurship still occurs, and we set out to define and understand it. In terms of the setting of pandemic entrepreneurship, there are several characteristics we advance. First, pandemic entrepreneurship occurs over an extended period of time, like long-term conflict entrepreneurship. Second, pandemic entrepreneurs are confronted with high uncertainty, like necessity, post-disaster, long-term conflict, and financial crisis entrepreneurs. In part, this uncertainty also comes about due to the need for social distancing. Third, pandemic entrepreneurs face system-wide challenges, like long-term conflict and financial crisis entrepreneurs. Last, pandemic entrepreneurs must overcome significant financial

obstacles, like necessity, post-disaster, long-term conflict, and financial crisis entrepreneurs.

We propose a theory of pandemic entrepreneurs, in addition to a setting for such entrepreneurship. First, pandemic entrepreneurs provide needed goods and services, like regular, post-disaster, and long-term conflict entrepreneurs. And, they often introduce new goods and services, which they share in common with regular entrepreneurs but not with any other crisis entrepreneurs. Third, pandemic entrepreneurs model resiliency – a driving force of many entrepreneurs in times of crisis. This is shared with necessity, post-disaster, long-term conflict, and financial crisis entrepreneurs. Fourth, pandemic entrepreneurs are place-dependent, meaning they place special emphasis on their own community's rebound and recovery. This is similar to post-disaster and long-term conflict entrepreneurs. Relatedly, pandemic entrepreneurs rely upon local and customary knowledge. This is shared by all crisis entrepreneurs – necessity, post-disaster, long-term conflict, and financial crisis – as entrepreneurs must be familiar with local, tacit, and customary knowledge to have success. Last, and most importantly, pandemic entrepreneurs bring about recovery and development. This is shared with post-disaster and financial crisis entrepreneurs. We argue that pandemic entrepreneurs 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. Since crisis entrepreneurs are unique depending upon the situation, understanding a setting and theory of pandemic entrepreneurs can help us understand real-world entrepreneurial efforts more clearly. Future research could apply our setting and theory of pandemic entrepreneurs 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 (2020) discussion of policymakers and their effects on entrepreneurs.

### **CHAPTER THREE: THE MEDIAN VOTER AND MASK MANDATES: EVIDENCE FROM STATE LEVEL MASKING POLICIES DURING COVID-19**

While much of the nascent literature on COVID-19 assumes benevolence of government actors, this chapter follows Boettke and Powell's (2021) discussion that in crises like COVID-19, we ought not assume such benevolence. This chapter explores how the median voter theorem relates to states' mask mandates and guidance during the COVID-19 pandemic. Specifically, this chapter investigates whether governors followed constituent opinions around masks due to reelection pressures or whether they acted out of public health concerns and implemented masks due to rising case and death rates. We predict that reelection incentives will be a factor that drives governors' actions around mask mandates. Particularly, governors will need to care about days until reelection: as the reelection approaches, governors will care relatively more about following constituent preferences. On the other hand, if acting out of public health concerns, governors will care more about case and death rates when considering mask mandates. We examine both hypotheses and find that both drive governors' decisions around mask mandates. These results underscore Boettke and Powell's (2021) claims that we must not assume benevolence of government actors during the pandemic. We use the results from our multivariate logistic regressions to motivate the chapter, and several case studies of governors' actions to highlight and contextualize the empirical results. Specifically, we

look at governors in the states of New York, Massachusetts, Hawaii, North Dakota, South Dakota, and Kansas, which help contextualize our results.

### **Section One: Introduction**

Did constituents' mask preferences affect governors' mask mandates? This chapter explores how the median voter theorem can help explain governors' mask mandates during the COVID-19 pandemic in the United States. Specifically, this chapter investigates whether reelection pressures influenced governors' decisions to follow constituent preferences. While it is likely that health concerns influenced governors' decisions (as much of the literature assumes), we set out to understand whether there were also other motivations present. That is, we investigate the extent to which governors' actions were motivated by public health concerns, reelection pressures, or a combination of the two. We predict that in states with governors who have relatively closer reelections, governors need to follow constituent beliefs more closely regarding mask mandates. We argue that, when in contention, politicians who face political pressures like upcoming reelections will choose to follow constituents' beliefs over scientific evidence around mask usage.

The motivating puzzle for this chapter is our empirical study. We employ a fixed-effects multivariate logistic regression which incorporates data on governors' approval ratings, days until governors' reelections, and state-level COVID-19 case and death rates (among other controls) to examine the extent to which public health concerns and reelection pressures shape governors' mask mandate decisions. We find that, as Boettke and Powell (2021) discussed, politicians are not purely benevolent. Specifically, we find



that as we get one day closer to a governors' reelection, the governor's likelihood of following constituent preferences around masks increases by 0.02 percentage points (in both the OLS and logit models), holding all else constant. This is a highly significant result in both models. Also note that this is *daily* data. In other words, we find that governors do care about following preferences of voters, especially the closer they are to reelection; they do not solely care about public health concerns.<sup>40</sup> Moreover, we find that case and death rates are significant factors contributing to governors' decision-making. In sum, we find that both public health and reelection concerns drive governors' actions around mask mandates. We use these results as the driving puzzle for the paper, and we utilize case studies to illuminate these results and help provide contextual evidence that governors face reelection incentives and that these incentives might shape state-level COVID-19 policies.

There exists a large literature surrounding masks and their efficacy. For the purposes of this paper, we assume that masks (depending upon the type used) are efficacious and prevent, or at least mitigate, the spread of COVID-19<sup>41</sup> (see Phillips et. al. 1992, McLure et al. 1998, Valle et al. 2010, Dharmadhikari et. al. 2012, Leung et. al. 2020, see Cherrie et. al., 2018 Feng et. al., 2020, Howard et. al. 2020). That is, we assume that governors can implement masks as a nonpharmaceutical intervention (NPI) to help fight the spread of COVID-19 in their state. Moreover, during our period of study (April 2020-April 2021), the dominant scientific narrative, especially in the beginning

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<sup>40</sup> See the Appendix for descriptions of the data, results from the baseline model and several variations of that model, and a discussion of the results.

<sup>41</sup> There is, of course, a spectrum of the efficacy of masks. For instance, in late 2021 and early 2022, scientists discussed that KN-95 masks and surgical masks are much more efficacious against the omicron variant than cloth masks.

half of this period, was that masks work. Only later in the pandemic did other, contradictory evidence begin emerging.

There now also exists a vast literature on the COVID-19 pandemic and its political and economic consequences. Particularly, the field of public choice has investigated many issues of misaligned incentives during COVID-19 and other disaster scenarios. Boettke and Powell (2021) highlight that evidence from the COVID-19 pandemic should make us reconsider the benevolence and omniscience assumptions implicit in most of the economic and public health literature. Leeson and Thompson (2021), in surveying the public choice literature on the public health community, find that regulations regarding public health are often determined by private interests, not public ones, not unlike what this paper predicts. Wagner (2021: 499) overviews exactly what this paper analyzes:

“[a]n entangled system of political economy will inject to some degree the imperatives of political competition into the pattern of scientific research along those margins where data can serve as instruments of political competition. Such entanglement between science and politics is probably unavoidable...”

That is, there will most certainly be entanglement between science and politics, and scientific data will serve as ‘instruments of political competition’, or useful tools politicians employ to improve their political standing. Coyne, Duncan, and Hall (2021) argue that the view of a benevolent social planner, or a “public health brain” who can solve pandemic issues (as much of the academic and public communities believed through the pandemic), ignores the political incentives public health planners face (both

between politicians and within bureaucracies), including political competition, political reward and punishment to lower-level political actors, and rent-seeking.

As Boettke and Powell (2021) note, much of the literature treats government officials as benevolent, but this is not always the case. Their incentives may not be to act in the public health interest, but rather to act out of their own interests. In this paper, we argue there are multiple different motivating factors going into a governors' decision to mandate masks. Particularly, we examine a governors' concern for public health and a governors' concern for his reelection. This paper utilizes the median voter theorem (Hotelling 1929, Black 1948, Tullock 2005) and how incentives stemming from reelection may influence governor action. We predict that if acting out of concern for solely the public health, governors would implement mask mandates in the face of rising case/death rates. If acting solely due to reelection incentives, governors base mask mandate decisions on constituent preferences. Using the median voter theorem, we hypothesize that politicians who have relatively closer elections will face more intense pressures to match their median constituent's beliefs on mask mandates.

This paper contributes to the public choice literature on the COVID-19 pandemic in the United States by investigating the differing responses of governors around mask mandates. The paper explores not only how politicians respond given their constituents' general views on masks, but also whether those responses matched more closely to their constituents due to upcoming elections. Section Two discusses our theory and what its predictions would be for governors' actions around mask mandates. Section Three

examines several states as helpful case studies to contextualize our theory and results. Section Four concludes.

## **Section Two: Guiding Hypotheses and Predictions**

### **A. Public Health and Reelection Incentives**

#### ***The Public Health Hypothesis***

This hypothesis argues that politicians act solely out of the public's health and that political decisions are driven by a desire to maximize the health of constituents, particularly concerning COVID-19 cases and death rates. We assume that a given politician knows when to implement NPIs such as masks (similar to the 'public health brain' from Coyne, Duncan, and Hall (2021)). Though this is a large assumption, we make it for clarity and precision of our discussion. We can imagine a benevolent public official or politician who knows precisely when to implement masks and other NPIs, regardless of the political climate or public backlash, in order to 'slow the spread' of COVID-19. That is, governors act solely for the public health and implement masks when they seem necessary in preventing further cases and excess mortality. The reverse, of course, should also be true if a governor is acting out of public health concerns. When cases plummet or COVID-19 becomes less of a threat for various reasons, we should also expect mask mandates to be loosened or lifted altogether, and other NPIs to similarly be loosened or lifted.

#### ***The Median Voter Hypothesis***

On the other hand, there is the competing median voter hypothesis. There is a large literature that focuses on politician alignment with constituent beliefs. Most notable

of this literature is the Median Voter Theorem, detailing that in a majority vote, voters will elect the candidate who espouses views closest to the median voter (Hotelling 1929, Black 1948). Tullock (2005) argued that the voter is the ultimate sovereign. Moreover, when a politician faces reelection, he faces higher incentives to match with and act upon constituent beliefs, which pleases constituents and helps garner more votes (Adams, Merrill, and Grofman 2005, Downs 1957, Erikson 1990, Mayhew 1974). Importantly, Bender and Lott Jr. (1996) find that “legislators who indulge their preferences at the expense of their constituents’ preferences put themselves at a competitive electoral disadvantage.” It should be expected that a politician will update his knowledge of constituent beliefs – likely more so before an election – or else he will risk losing constituent support and thus risk losing election or reelection (see Butler and Nickerson 2011, Kousser, Lewis, and Masket 2007).

If a politician indulges other preferences at the expense of their constituents’ preferences, constituents might be vocally critical, especially around a contentious issue like mask mandates. And the politician in this scenario may risk his reelection, so it is likely not in his best interest to indulge other preferences when they are in contention with his constituents’. We examine state mask mandates, and we analyze if governors (both incumbents who are term limited, who were elected/reelected in 2020, and who are up for reelection in 2022 and 2024) matched constituent beliefs. We suspect that

governors who were elected/re-elected in 2020 or face reelection in 2022<sup>42</sup> had/have pressures to match constituent beliefs relatively closer regarding mask mandates.

## **B. States and Predictions**

The six states analyzed in the case study section<sup>43</sup> of this paper are either ‘pro-mask’ states or ‘anti-mask’ states; based on a YouGov survey from Spring 2020, we chose these states as they either had citizens that strongly favor masks relative to the nation as a whole or had citizens that strongly oppose masks relative to the nation as a whole. The data we gather, both quantitatively and qualitatively, focuses on the period from April 2020-April 2021. We choose this period of study since it is during the height of the US pandemic, after the virus was declared a pandemic in March 2020 and before the CDC issued relaxed mask guidance in May 2021. We examine New York, Massachusetts, and Hawaii as representative for the ‘pro-mask’ states, and North Dakota, South Dakota, and Kansas as representative of the ‘anti-mask’ states. We believe these case studies can help contextualize our data analysis and consequently our driving puzzle of the paper.

The table below displays the states, their respective governor, that governor’s reelection date, and our predictions for how each governor would respond, including (1) whether they will have a statewide mask mandate, (2) whether that mask mandate will be over one year in length, and (3) whether they will fine constituents for breaking the mandate (i.e., will the mandate have ‘teeth’). A more detailed table is included in the

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<sup>42</sup> A small number of governors also face reelection in odd-numbered years. We account for this in our data (see Appendix).

<sup>43</sup> We analyze a total of 37 states in our quantitative analysis from April 2020-April 2021, using daily data (see Appendix).

Appendix, which includes variables like if the state had a mask mandate ban, start and end dates of the mask mandate (if any), the population-weighted density of the state, and the average temperature (high and low) in the highest case rate month in each state.

**Table 3: States and Predictions**

| <b>State</b>                                   | <b>NY</b>        | <b>MA</b>                              | <b>HI</b>         | <b>ND</b>       | <b>SD</b>       | <b>KS</b>       |
|--|------------------|--|-------------------|-----------------|-----------------|-----------------|
| <b>Governor</b>                                | Andrew Cuomo (D) | Charlie Baker (R)                      | David Ige (D)     | Doug Burgum (R) | Kristi Noem (R) | Laura Kelly (D) |
| <b>(Re)Election date</b>                       | Nov. 2022        | Retiring, but announced after Covid-19 | Term limited 2022 | Nov. 2020       | Nov. 2022       | Nov. 2022       |
| <b>Median Constituent View</b>                 | ‘pro-mask’       | ‘pro-mask’                             | ‘pro-mask’        | ‘anti-mask’     | ‘anti-mask’     | ‘anti-mask’     |
| <b>Prediction: Statewide Mask Mandate?</b>     | Yes              | Yes                                    | Yes               | No              | No              | No              |
| <b>Prediction: Mask Mandate Over 365 Days?</b> | Yes              | Yes                                    | No                | No              | No              | No              |
| <b>Prediction: Will Fines Be Enforced?</b>     | Yes              | Yes                                    | No                | No              | No              | No              |

Our predictions, as outlined in the Table above, are described in more detail here. First, Governor Cuomo of New York State was up for reelection in 2022, and he planned to run for reelection up until his resignation in August 2021 due to his sexual assault scandals.<sup>44</sup> We predict that Cuomo, facing pro-mask constituents and a close election, will face incentives to enact a mask mandate. This could be the case both because of his worry for public health and safety and because of his close election and need to match constituent preferences. His mandate will likely be relatively long, and he will likely fine

<sup>44</sup> As this happened *after* our period of study, we believe this case is still helpful in understanding and applying our results.

constituents for breaking the mask mandate. Both predictions, again, can be contributed to his concern for public health and his close reelection. Second, Governor Baker of Massachusetts announced his retirement at the end of 2021, well after vaccines had been readily available and well after the height of the pandemic in his state.<sup>45</sup> It is thought that Baker did not decide to retire well into the pandemic due to unrelated reasons.<sup>46</sup> Thus, for the purposes of this paper, we assume for ease of analysis that he also faces a November 2022 reelection date. Although he is a Republican, he faces a relatively ‘purple’ electorate who is generally pro-mask. Thus, we predict that he will have a long, statewide mask mandate and will enforce fines. Third, Governor Ige of Hawaii is term limited, and his term ends in 2022. Thus, while he likely cares for public health outcomes, he does not need to worry about reelection. That said, he likely faces some incentive to leave office with a good public image and help get another Democrat reelected. We predict that Ige would have a mandate, but it might not be as strict as a governor’s mandate who faces reelection. Thus, we predict that he will enforce a mandate, but that it won’t be extremely long or enforced strictly with fines.

Regarding the anti-mask states, Governor Burgum of North Dakota faced reelection in November of 2020, during the first year of the pandemic. His constituents were largely anti-mask, so we predict that he would not have a mask mandate, at least not

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<sup>45</sup> As this happened *after* our period of study, we believe this case is still helpful in understanding and applying our results.

<sup>46</sup> Indeed, many argue that Baker made this decision based off of Trump’s endorsement of a different gubernatorial candidate, which didn’t happen until October 2021, well after our period of study (Ramirez 2021). Thus, Baker himself believed he would be running in November 2022 until Trump’s endorsement of another candidate came in October 2021, changing his course of action. Thus, we argue that reelection still likely influenced Baker’s decision-making during the pandemic.



*before* his reelection; his reelection was extremely early in the pandemic, and he could act different following his reelection given that he won his constituents' votes already. Governor Noem of South Dakota faces a November 2022 reelection, faces anti-mask constituents, and thus we thus also predict she will not implement a mask mandate. Last, Democratic Governor Kelly of Kansas, up for reelection in November 2022, faces largely anti-mask constituents and thus we predict she will not implement a mandate. Section Three will examine the accuracy of our predictions in light of how the events played out in each state.

### **Section Three: Case Studies**

Below, we discuss several case studies that help us contextualize our results mentioned in the Introduction and fully discussed in the Appendix. We look at six states – three states that generally have ‘pro-mask’ preferences, and three states that generally have ‘anti-mask’ preferences. We examine New York, Massachusetts, and Hawaii, and then North Dakota, South Dakota, and Kansas, respectively. We believe these case studies can help contextualize our data analysis.

**Table 4: Case Study States, Predictions, and Results**

| <b>State</b>                                    | <b>NY</b>        | <b>MA</b>               | <b>HI</b>            | <b>ND</b>                         | <b>SD</b>       | <b>KS</b>          |
|---|------------------|-------------------------|----------------------|-----------------------------------|-----------------|--------------------|
| <b>Governor (Party)</b>                         | Andrew Cuomo (D) | Charlie Baker (R)       | David Ige (D)        | Doug Burgum (R)                   | Kristi Noem (R) | Laura Kelly (D)    |
| <b>Next Election</b>                            | Nov. 2022        | Retiring, but Nov. 2022 | Term limited         | Nov. 2020                         | Nov. 2022       | Nov. 2022          |
| <b>Statewide Mask Mandate? (Prediction)</b>     | Yes (Yes)        | Yes (Yes)               | Yes, but short (Yes) | Yes- <i>after</i> reelection (No) | No (No)         | Yes (No)           |
| <b>Mask Mandate Over 365 Days? (Prediction)</b> | Yes (Yes)        | Yes (Yes)               | No (No)              | No (No)                           | No (No)         | No (No)            |
| <b>Will Fines be Enforced? (Prediction)</b>     | Yes (Yes)        | No (Yes)                | Yes (No)             | Yes (No)                          | No (No)         | No (No)            |
| <b>Mask Policy Start Date</b>                   | 17-Apr-20        | 6-May-20                | 17-Nov-20            | 14-Nov-20                         | N/A             | 3-July-20          |
| <b>Mask Policy End Date</b>                     | 17-May-21        | 29-May-21               | 25-May-21            | 1-Jan-21                          | N/A             | 1-Apr-21           |
| <b>Length of Mandate</b>                        | 395 days         | 388 days                | 189 days             | 48 days                           | N/A             | 272 days           |
| <b>Highest Case Rate Month(s)</b>               | Jan-21           | Dec-20, Jan-21          | Aug-20               | Nov-20                            | Nov-20          | Nov-Dec-20, Jan-21 |

## **A. Pro-Mask States**

### *New York State*

Governor Cuomo of New York State was up for reelection in 2022, and he planned to run for reelection up until his resignation in August 2021 due to his sexual assault scandals. As this happened *after* our time of study, we believe this case is still helpful in understanding and applying our results. Specifically, we argue that the case of New York helps support our hypothesis that governors who face reelection in 2022 enacted mask mandates and guidelines that followed constituent beliefs regarding mask

usage. New York was the second-most ‘pro-mask’ state (see Appendix) and it was a state with some of the highest mask usage throughout the pandemic. In Cuomo’s instance, our theory should predict that with an impending election, he must cater to his median voter. Especially in the contentious issue of mask usage during the pandemic, he must strictly follow his voters’ preferences or risk backlash and potential loss of election.

Cuomo’s mask mandate went into effect on 15-April-2020 and ended in 17-May-2021 (past our period of study). The mask mandate in his state was actually enforced, as opposed to other states that had little to no enforcement (or even county officials counteracting the governors’ mandates, as we will see in the case of Kansas). Governor Cuomo described masks as “cool” (Reuters 2020), and he called upon New York City officials to implement \$1,000 fines on those not wearing masks (Guse 2020). New York issued \$150,000 in fines during the first weekend mask mandate was in place, largely targeting religious establishments.<sup>47</sup> Cuomo, facing reelection in 2022, had a somewhat low approval rating of 47%, putting more pressure on his need to cater to his voters in order to win reelection. New York has an extremely high population-weighted density, and New York’s case rates reached an absolute maximum in January 2021. That said, New York had a relative maximum of COVID-19 cases in Spring 2020, when COVID-19 was emerging as a large threat across the globe.

If we expect solely public health motives rather than reelection motives to guide Cuomo’s actions, then we should instead expect slightly different outcomes. Specifically, we should expect mandates to line up with peak case numbers. Cuomo implemented

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<sup>47</sup> See <https://www.nytimes.com/2020/10/11/nyregion/coronavirus-nyc-lockdown-fines.html>

masks at a relative maximum for cases in his state: New York reached a relative maximum of cases in Spring 2020, which is when Cuomo implemented the mask mandate. Thus, Cuomo's actions could be said to comport with public health concerns. However, if Cuomo was strictly following this logic, he would have ended or loosened the mask mandate when cases plummeted through summer of 2020, yet he maintained the mask mandate for over a year in his state. Ending mandates in periods of low cases would have likely been very unpopular with his median voter. Consequently, it seems that Cuomo did not only follow case rates or broader public health concerns, but in addition, he also followed constituent preferences which overwhelmingly favored masks, even in times of low cases.

As our empirical results suggested, reelection motives are typically involved in governors' decision-making. In Cuomo's case, he implemented masks during a relative maximum of cases, yet he also maintained mask usage during times of absolute low cases. Moreover, given that Cuomo's median voter largely favored mask mandates, his mandate length (one of the longest of any state during the pandemic) and enforcement of masks through fines likely indicates he was also catering to reelection incentives and his median voter, even if he also was acting out of public health concerns.

### *Massachusetts*

Massachusetts, much like New York, had a governor up for reelection in 2022, though in late December 2021 he decided not to seek reelection.<sup>48</sup> Massachusetts'

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<sup>48</sup> Many argue that Baker made this decision based off of Trump's endorsement of a different gubernatorial candidate, which didn't happen until October 2021, well after our period of study (Ramirez 2021). Thus, Baker himself believed he would be running in November 2022 until Trump's endorsement came in

constituents highly favored mask mandates during the pandemic. One key difference between New York and Massachusetts, though, is that Governor Baker of Massachusetts is a Republican – which, when it comes to mask preferences, can make drastic differences in opinion. A Pew Research survey found that “Democrats and Democratic-leaning independents are about twice as likely as Republicans and Republican leaners to say that masks should be worn always (63% vs. 29%)” (Pew Research Center 2020b). Moreover, “Republicans are much more likely than Democrats to say that masks should rarely or never be worn (23% vs. 4%)” (Pew Research Center 2020b).

Unlike Cuomo, Governor Baker never stated his personal opinion on mask usage, so we do not know his individual preferences. What we do know is that the constituents in his states held very pro-mask views. In Massachusetts, 58% of Republicans and 84% of Democrats agreed that there should be a statewide mask mandate in 2020 (Spectrum News 1/Ipsos Poll 2020). It is unsurprising that Baker chose to implement a mask mandate: most of his voters favor masks, and thus he had to cater to the median voter. His median voter, given that poll, clearly supports a mask mandate.

Also of note is that in Massachusetts, mask mandates were not enforced with fines, and local officials resisted fining anyone. This is one area where our prediction was incorrect. While Baker catered to his median voter by implementing a mandate, he did not strictly enforce the mandate as other states like New York did with fines. It is puzzling that he wouldn't strictly enforce the mandate. This could perhaps be due to his very high overall approval rating (69%). On the margin, a governor can care less about

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October 2021, changing his course of action. So, we argue that reelection still likely influenced Baker's decision-making during the pandemic.

reelection incentives if he has higher approval ratings, all else equal. Baker perhaps is representative of this: while he catered to his median voter and implemented mandates, he did not strictly enforce them. His approval ratings and COVID-19 approval ratings were relatively high, and consequently, he faced marginally less pressure to match his constituents' preferences. Moreover, there is the potential that fines might alienate voters who disapprove of fines. This could lead to a loud, albeit small minority, who causes harm to his reelection. Last, and most likely a leading factor in Baker's lack of fines, is that given that his constituents were generally pro-mask, Baker might not have needed to implement fines since most constituents willingly wore them, anyway.<sup>49</sup>

If Baker were acting solely out of public health concerns, we should expect to see differing circumstances than what played out. In Massachusetts, Baker implemented a mask mandate on 6-May-2020 and it ended on 29-May-2021 (over a year long). Massachusetts was in a relatively mild season when masks were implemented, with temperatures in the 50s to 60s. And, Massachusetts experienced its absolute maximum of case rates in Dec-2020 and Jan-2021, but had a relative maximum in early Spring 2020. The mask mandate, however, was in place long before the absolute peak, and was implemented *after* the relative peak in Spring 2020 – once cases were already declining. In other words, the mask mandate was in fact implemented at a relatively low period of cases, after the first peak and before the absolute maximum. This does not comport with a governor solely acting out of regard for public health.

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<sup>49</sup> This is distinct from the Cuomo/NY case because New York did have a vocal minority opposed to masks and lockdowns, thus fining might have helped discourage mask slackers. For instance, many of those fined were members of the Orthodox Jewish community, and there was no such loud and organized minority like this in Massachusetts.

Despite being a Republican, Governor Baker catered to constituents' views to secure his reelection bid in 2022, and he did not side with his 'typical' party view of eschewing mask usage. Rather than strictly catering to public health, the evidence above supports our contention that governors up for election in the near future, particularly in 2022, will face intense pressures to match constituent beliefs on mask usage and mask mandates.

### *Hawaii*

Despite being one of the most pro-mask states in the country, Hawaii had one the shortest mask mandates relative to other pro-mask states, at 189 days. The data on Hawaii is interesting: the state technically had a mask mandate in April, but the mandate did not apply to any public places and did not have any binding enforcement. The binding, public mask mandate came much later: in November 2020. It is of note that Governor Ige is term-limited, and his term is set to expire in 2022, meaning he *does not* face reelection incentives, though there are likely some incentives to leave office in a favorable light and help get another Democrat reelected. While Ige's mask mandate ended around the same time as most other states,<sup>50</sup> his mandate (applying to public places) did not begin until November 2020, well after other pro-mask states, which mostly all implemented their mandates in spring or summer of 2020.

What remains to be seen is why Ige's public mandate in Hawaii came so much later. It is of note that Ige was ranked the least popular governor before the pandemic,

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<sup>50</sup> The CDC relaxed their guidance on masks for vaccinated individuals in May 2021, which explains why many states, including all six states analyzed here, loosened restrictions in May.

with an approval rating of 32% (tied for lowest approval rating with Governor Lamont of Connecticut). With no reelection to fight for, his desire to match constituent beliefs was likely quite low, indicative of his low approval rating. Up until November of 2020, he allowed counties to set their own mask mandates; and, while there was a mask mandate in effect in Hawaii, it did not apply to public places until November. The theory presented in this paper would suggest that Ige, due to his term limitation, was able to indulge other preferences besides those of his constituents. Perhaps he indulged his own preferences, or those of his close officials. Another explanation could be that Hawaii had stricter NPIs on other margins (for instance, the strict travel bans and quarantine rules, which were largely enforceable due to the fact that Hawaii is an island), thus allowing for less restrictive mask policies. What seems clear, though, is that he did not follow his voters' opinions on masks as closely as other pro-mask states, and instead left the decision-making around masks up to counties well into the pandemic. He eventually received backlash due to his original order which allowed counties to decide; many argued this made the government look weak and led to large confusion. Many constituents were confused and angered about the non-binding mask mandate and there was large public outcry about his loose mask policy. Only after public outcry did Ige issue a statewide mandate, and our theory discussed in this paper would suggest that he wanted to save his reputation as governor and consequently issued the secondary, binding mandate.

Ige's decision-making lines up with our discussion of reelection incentives that governors who are term limited likely did not follow constituent beliefs regarding mask



mandates as closely as other governors who face(d) more intense election pressures in 2020 or 2022. This is a simple application of the median voter theorem that discusses how politicians must prioritize elections, and thus must cater to the median voter. If a politician does not face reelection, he does not face as intense of pressures to match constituent preferences.

Ige's decision-making does not line up with our discussion of governors' caring about public health. Ige did not implement a mandate when his state had peak case rates, which was in August of 2020, and his binding mandate did not come until November. If motivated by public health concerns, what we would expect to see (given Hawaii's peak case rates) is a binding mask mandate much earlier, either in spring or summer of 2020. Instead, it seems clear that Ige only implemented a mask mandate upon facing wide public backlash and thus intense pressures to save his reputation and help ensure another Democrat was elected. That said, Ige did eventually impose fines on those who did not follow mask mandates. Since Ige faced no reelection constraints, he did not face the pressure to align with his constituents' beliefs until many months into the pandemic.

## **B. Anti-Mask States**

### ***North Dakota***

North Dakota's governor, Doug Burgum, was up for reelection in November 2020, meaning he campaigned and was also incumbent governor of the state during the height of the COVID-19 pandemic. Despite his constituents' views on masks, he implemented a mask mandate, though he had the shortest mask mandate of any state, at 48 days. Interestingly yet unsurprisingly, Burgum implemented a mask mandate *after* his

reelection was secured. This is in line with our predictions: Burgum did not implement a mandate prior to his reelection, though he did implement one afterwards. Going into the election and prior to COVID-19, Burgum had a relatively high approval rating of 58%. Voting was held on November 3, 2020, and the mask mandate was not issued until November 14, 2020 (and it ended two months later, on January 18, 2021). There is reason to believe, based on the median voter theorem, that Burgum did not implement the mandate until after he secured his reelection. Implementing a mandate a mere 11 days after the election displays that Burgum was unable to indulge his own preferences or health interests prior to reelection, or else he risked losing favor with his constituents and jeopardizing his reelection. Immediately following his reelection, however, he was able to implement a mask mandate and go against his constituents' preferences. Moreover, his mandate was actually enforced, as fines were threatened to those who did not follow the mandate, though there is no evidence that anyone was actually fined in the state. Similarly, after his reelection, Burgum vetoed a mask mandate ban in his state in Spring of 2021, another move against his constituents' wishes. North Dakota's state legislature eventually overturned his veto, making the mask mandate ban state law. Enforcing the mandate with fines is contrary to our prediction. This can again be explained through the fact that Burgum enforced the mask mandate *following* his reelection, meaning that he faces much less pressure to align with constituent views.

Immediately following his election, Governor Burgum was able to indulge other preferences besides those of his voters. He will not face such pressures again until leading up to his 2024 reelection. If Burgum had been following pure public health

motives, we would have expected a mandate prior to when he actually mandated masks. Indeed, Burgum implemented masks during North Dakota's worst month, but he only did so *after* his reelection. Cases began skyrocketing just prior to Burgum's election, at the beginning of November 2020. In fact, November 14, when the mandate was implemented, marked the height of cases in the state. If strictly following public health motives, Burgum should have implemented masks prior to the peak, when cases begin rising rapidly, not when they peaked and then began trending downwards. Consequently, it appears that Burgum was not following pure public health motives.

### ***South Dakota***

Governor Noem from South Dakota never implemented a statewide mask mandate, and she faces reelection in 2022. We argue that Noem aligns with our contention that governors who face reelection in 2022 likely must follow constituent beliefs very closely regarding mask usage. Given that the constituents in these states heavily eschewed mask usage, it is consistent with our theory Noem did not issue a mask mandate.

In South Dakota, Noem repeatedly spoke out against mask mandates, and she rarely wore masks in public (Groves 2020). Given that her approval rating was fairly low (43%), she likely faced more intense pressures to match with constituent beliefs leading up to her 2022 reelection. In fact, in November 2020, when the state faced a bad wave of COVID-19 cases, a White House task force recommended Noem implement a mask mandate in South Dakota. In response to this, Noem's senior analyst spoke out, saying "I think our response on the mask mandates are pretty well covered at this point" (Matzen

2020). Noem also received letters from church leaders and Indigenous state legislators pressuring to implement a mandate (Matzen 2020). While a small section of her constituents wanted masks, such as these church leaders and legislators, her median voter did not want a mask mandate. She never implemented other NPIs, either.

Had Noem been following what public health interests would predict, we should have seen mask mandates implemented when case rates rose, particularly in the very large wave in fall and winter of 2020. Instead, Noem of South Dakota bucked national pressure to implement a mask mandate and continually chose to cater to her anti-mask constituents, who constituted a dominant portion of her electorate. This case highlights the fact that leaders must cater to their constituents, especially as they face reelections on the near horizon.

### ***Kansas***

Governor Kelly, a Democratic governor, issued a statewide mask mandate during the pandemic, and she faces reelection in 2022. Governor Kelly faced constituents who generally eschewed mask usage, yet she decided to implement a mask mandate anyway. Given our theory, we should expect Kelly to cater to her constituents' preferences before indulging other preferences. That said, Kelly implemented a mask mandate on July 3, 2020 (and it ended officially April 1, 2021), and she implemented a more stringent measure in November 2020, applying to public areas, similar to the case of Hawaii. She imposed another order at the end of March 2021, prior to the CDC updating their loosened mask guidance, but this was overturned by the state legislature.

Kelly never faced much pressure to mandate masks as she was consistently pro-mask, yet she did receive backlash from implementing one, particularly from county leaders in Kansas. Following her July 3, 2020, mandate, one county commissioner called her mandate “a horrendous decision” and other county leaders attempted to overturn her mandate (Shorman and Ritter 2020). Her mask mandate did not have much enforcement, since it was up to county officials to decide whether to impose fines. Most county officials opposed the mandate, meaning enforcement of Kelly’s mandate was not common. Following another mask mandate in March 2021, legislators quickly overturned her measure and denounced Kelly’s actions.

It is clear that Kelly indulged other preferences before constituent preferences, which does not comport with the median voter theorem advanced here. It should be noted that Kelly had a moderate approval rating of 50% prior to COVID-19. However, it also seems unlikely that Kelly followed public health motives, given that she implemented masks during a time of very low case numbers, well before any wave in Kansas (which did not come until Nov-Dec-2020 and Jan-2021). That said, Kelly did implement more stringent enforcement of mask mandates in November 2020, when cases began to soar in the state, so her rationale could be consistent with public health motives. Last, Kansas is a low-density state, but it did have very high temperatures, over the 90s, when she implemented the mask mandate. Perhaps this was the leading factor, but without any other causes at the time (case rates increasing, pressure to implement mandates, etc.) this factor alone seems unlikely to have pushed Kelly to implement a mandate in a state

where it is wildly unpopular. Thus, it remains to be seen why Kelly implemented a mandate.

Another alternative hypothesis is that Kelly is aiming for higher political office, such as a cabinet position. Thus, she needed to ‘fall in line’ with the national median Democratic view on masks (which was largely in favor of mask mandates). While harming her reelection chances in her own state, she made a national name for herself through the pandemic and let other Democratic politicians and voters know that she was tough on masks. This would signal to these groups that she is a good, tough Democrat willing to fight for the party’s beliefs. While there is no hard evidence that Kelly seeks higher office, it seems like a plausible explanation for her actions and is in line with the median voter hypothesis. She could be catering to a different median voter, that of the median Democrat in the US, rather than her own constituents.

Not following state election incentives undoubtedly hurt her reelection chances. The 2022 gubernatorial race in Kansas is currently considered by FiveThirtyEight as “arguably the most endangered incumbent governor running in 2022” (Wu 2021). Multiple polling agencies have labeled the state (one of the few that receive this label) a toss-up. One state senator said, “I think it would be very generous to say that this is a toss-up... I think that the Republicans could nominate a freshman representative out of the Kansas House of Representatives and beat Laura Kelly at this stage” (Wu 2021). The senator went on to discuss how Kelly’s mask mandates and other orders “are going to weigh on voters a lot more heavily than what happened in the past election” (Wu 2021).

In February 2021, which was past the worst of COVID-19, Kelly implemented a massive spending plan for Kansas, which sought to revitalize jobs and the economy, especially helping suburban and rural areas.<sup>51</sup> This, perhaps, was done with the aim of winning back the very voters she alienated during the pandemic.<sup>52</sup> This type of action should be unsurprising to public choice theorists who recognize that if Kelly wants to win reelection, she will have to cater to the median voter and gain back the median voter's favor after her pandemic masking policies.

Time will tell whether Kelly's actions during the pandemic were enough to lose her the election, or whether her new revitalization plan is enough to win her the election, but it is clear that her masking order surely did not help her reelection effort. This comports with what was discussed in our theory section: if governors indulge other preferences besides those of their voters', they will harm their reelection chances (Bender and Lott Jr. 1996). Consequently, Kansas may be a case that highlights how if governors do not follow election incentives, but instead follow the public health incentives or some other set of incentives, politicians can jeopardize their campaigns.

### **C. In Summary**

The above six cases represent many of the differing situations with which governors were faced through the COVID-19 pandemic. Some governors, like Cuomo

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<sup>51</sup> See <https://governor.kansas.gov/governor-laura-kelly-announces-comprehensive-framework-for-growth-economic-development-strategy/>.

<sup>52</sup> There is speculation that Governor Whitmer in Michigan acted similarly: she passed a large car insurance refund check, perhaps in part to gain back favor with those who she had alienated during the pandemic. Michigan drivers were refunded \$400 per vehicle. See [https://www.michigan.gov/difs/0,5269,7-303-13648\\_60666\\_109325---,00.html](https://www.michigan.gov/difs/0,5269,7-303-13648_60666_109325---,00.html) for further information.

and Baker, faced constituents who highly favored mask mandates, and thus they had incentives to implement masks. Though they perhaps implemented masks for other reasons, like rising case rates or extreme temperatures, it appears that these governors also implemented mandates to appease their median voter. Governor Ige, who was slow to do so (presumably, in part, because he does not face reelection), faced swift and serious backlash from constituents when he did not act upon constituent mask preferences. And in states where constituents had preferences against masks, governors like Burgum and Noem of North and South Dakota, respectively, faced incentives to not implement mandates. Burgum, who was reelected in November 2020, implemented a mask mandate immediately following his reelection, highlighting the fact that he needed to follow the median voter's preferences prior to reelection, but once his election was secured, he could indulge other preferences. Noem, who faces reelection in 2022, never implemented a mandate, again, partially driven by the incentives to appeal to her median voter. Governor Kelly did not follow suit and is facing the consequences as her chances of winning reelection currently dwindle. Time will tell whether her actions were enough to cost her the median voter's vote. These cases show the variety of situations that confronted governors during the COVID-19 pandemic, yet they also show that despite the varying situations, incentives for reelection always remain a prominent, though not sole consideration for politicians.



#### **Section Four: Conclusion**

This chapter sought out to answer whether public health concerns or public choice motives drove governors' actions around mask mandates during the COVID-19 pandemic in the United States. Much of the literature assumes benevolence of public actors, but Boettke and Powell (2021) call upon academics and policymakers to remember that those in government don't always act out of benevolence, and instead are self-interested and face other incentives besides protecting public health. This chapter seeks to understand governors' incentives around mask mandates. We argue that if governors were acting out of public health concerns, they would implement masks regardless of constituent preferences, likely when case rates and death rates began to rise. If acting due to public choice incentives (particularly reelection incentives, and needing to appeal to the median voter), governors will instead mandate or not mandate masks, depending upon the preferences of their median voter.

Boettke and Powell (2021) discussed needing to drop the benevolence assumption usually assumed for government actors, and our results are consistent with this imploration. Our findings indicate that while public health concerns drove some of the decision-making behind mask mandates, as variables like COVID-19 case and death rates were significant, so too did public choice motives drive decision making, as approval ratings and days until reelection were also significant. We looked at six states to highlight our empirical findings – three of which were generally pro-mask mandates, and three of which were not – and found that public choice motives appeared to weigh heavily on governors' decision making around mask mandates. The implications of this chapter

should be taken seriously and should be seen as an empirical test of Boettke and Powell's claim that we should drop the benevolence assumption through the COVID-19 crisis.

We believe these results have external validity, as governors (and other politicians) will always face incentives that encourage self-interested behavior, as the vast public choice literature has discussed. Even if they are not entirely self-interested and are still motivated to do good for their constituents, most politicians eventually face reelection and thus must consider it as one of their main priorities. Future work should look at other COVID-19 policies and test whether governors followed both public health and public choice motives. It would be interesting to see whether more strict policies, like lockdowns or closures of 'non-essential' retail, led to politicians facing even steeper public choice motives, since these policies affect lives more so than a mask mandate. That is, governors may be more prone to follow constituent beliefs the more drastic or strict a policy becomes. If a governor faces constituents who are against lockdowns and masks, they may face more severe backlash from implementing a lockdown than a mask mandate, which would more severely jeopardize their reelection. Needless to say, there are many important applications of public choice theory to the current pandemic. While this chapter hoped to empirically test the median voter theorem around mask usage, many other topical ideas exist and should be explored, for the sake of understanding the current pandemic and helping inform future crises.

## APPENDIX

### Chapter Three: Detailed Information on Case Study States

**Table 5: Case Study States, Further Information**

| <b>State</b>                                   | <b>NY</b>        | <b>MA</b>         | <b>HI</b>     | <b>ND</b>                       | <b>SD</b>       | <b>KS</b>          |
|--|------------------|-------------------|---------------|---------------------------------|-----------------|--------------------|
| <b>Governor</b>                                | Andrew Cuomo (D) | Charlie Baker (R) | David Ige (D) | Doug Burgum (R)                 | Kristi Noem (R) | Laura Kelly (D)    |
| <b>Next Election</b>                           | 2022             | 2022              | term limited  | 2024 (had 2020 reelection)      | 2022            | 2022               |
| <b>Statewide Mask Mandate?</b>                 | Yes              | Yes               | Yes           | Yes (after reelection)          | No              | Yes                |
| <b>Mask Policy Start Date</b>                  | 17-Apr-20        | 6-May-20          | 17-Nov-20     | 14-Nov-20                       | N/A             | 3-Jul-20           |
| <b>Mask Policy End Date</b>                    | 17-May-21        | 29-May-21         | 25-May-21     | 1-Jan-21                        | N/A             | 1-Apr-21           |
| <b>Length of Mandate</b>                       | 395 days         | 388 days          | 189 days      | 48 days                         | N/A             | 272 days           |
| <b>Mask Mandate Ban?</b>                       | No               | No                | No            | 22-Apr-21                       | No              | No                 |
| <b>Mask Mandate Ban Date</b>                   | N/A              | N/A               | N/A           | Yes, but Gov. originally vetoed | N/A             | N/A                |
| <b>Highest Case Rate Month(s)</b>              | Jan-21           | Dec-20, Jan-21    | Aug-20        | Nov-20                          | Nov-20          | Nov-Dec-20, Jan-21 |
| <b>Population Weighted Density</b>             | 421              | 339.43            | 222.9         | 9.7                             | 10.7            | 35.6               |
| <b>High/Low Temperature on Date of Mandate</b> | 51/36            | 51/41             | 86/77         | 51/20                           | N/A             | 91/69              |

### **Chapter Three: States Examined**

See explanation of z-scores and the YouGov survey in Appendix, “Chapter Three: The Data”. (Nguyen 2020).

**Table 6: States and Respective Z-Scores**

| <b>State</b>         | <b>Z-Score</b> |
|----------------------|----------------|
| <b>Alabama</b>       | -3.62          |
| <b>Arizona</b>       | -7.43          |
| <b>Arkansas</b>      | -2.08          |
| <b>California</b>    | 18.16          |
| <b>Colorado</b>      | 5.13           |
| <b>Connecticut</b>   | 2.13           |
| <b>Georgia</b>       | 2.29           |
| <b>Hawaii</b>        | 5.27           |
| <b>Idaho</b>         | -5.04          |
| <b>Indiana</b>       | -6.07          |
| <b>Iowa</b>          | -8.32          |
| <b>Kansas</b>        | -6.01          |
| <b>Kentucky</b>      | -7.75          |
| <b>Louisiana</b>     | -2.99          |
| <b>Maine</b>         | -2.28          |
| <b>Maryland</b>      | 4.18           |
| <b>Massachusetts</b> | 2.33           |
| <b>Michigan</b>      | 3.26           |
| <b>Minnesota</b>     | -7.21          |
| <b>Missouri</b>      | -4.64          |
| <b>Nebraska</b>      | -3.84          |
| <b>New Jersey</b>    | 12.28          |
| <b>New Mexico</b>    | -2.11          |
| <b>New York</b>      | 14.74          |

|                       |        |
|-----------------------|--------|
| <b>North Carolina</b> | -5.93  |
| <b>North Dakota</b>   | -2.41  |
| <b>Ohio</b>           | -10.57 |
| <b>Oklahoma</b>       | -3.74  |
| <b>Pennsylvania</b>   | 3.18   |
| <b>Rhode Island</b>   | 2.84   |
| <b>South Carolina</b> | -4.08  |
| <b>South Dakota</b>   | -3.19  |
| <b>Tennessee</b>      | -3.63  |
| <b>Utah</b>           | -5.64  |
| <b>Washington</b>     | -2.6   |
| <b>West Virginia</b>  | -2.33  |
| <b>Wisconsin</b>      | -9.35  |

### **Chapter Three: The Data**

We restrict our entire period of study from April 1, 2020, through April 30, 2021. This allows us to capture over an entire year of the pandemic and various mask mandates, while it also restricts the data to exclude the updated May 2021 CDC guidance on loosening mask measures. The unit of observation is a state-day pairing over this period. For each state-day we are interested in obtaining data on the state’s COVID case and death rates, the governor’s approval rating, the days until the governor’s reelection, and other state-level characteristics. This data is described in more detail below.

We first gather data collected from a YouGov survey by state on mask usage and willingness to implement mandates (Nguyen 2020) collected from March 26-April 29, 2020, which was before state mask mandates were ordered. To avoid endogeneity issues, we can only observe this variable prior to mask mandates being implemented. If we

observed mask usage by state after this period, we risk not knowing whether mask usage and preferences for mask mandates increased due to mask mandates or due to personal choice. States with a z-score above 1.96 will strongly favor masks relative to the nation as a whole, and states with a score below -1.96 will strongly oppose masks relative to the nation as a whole. We use this as a proxy for what voters would want to see implemented, prior to mandates being implemented. We exclude states that flipped parties in 2020 elections, e.g., where the governor went from being a Democrat to a Republican, for clarity of our focus.<sup>53</sup> We also exclude Washington, D.C., and other U.S. territories from our data. We analyze 37 states in this chapter, examining whether they were likely to adopt mask mandates, measured in March-April 2020 (Nguyen 2020). The states used, and their respective z-scores, closely align with the general narrative on pro- and anti-mask states that has emerged through the pandemic. That is, the states that are classified as strongly favoring or opposing masks relative to the nation would generally be classified as pro- and anti- mask states.

We also gather data on governor approval ratings by state. Again, this data predates the COVID-19 pandemic to avoid issues of endogeneity, since governor approval ratings are endogenous to the pandemic and any policies a governor may implement in response to the pandemic will likely affect approval ratings. These ratings were gathered from October 1-December 31 of 2019, the latest data on governor approval ratings that predates the US COVID-19 pandemic.<sup>54</sup> We also created data on how many

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<sup>53</sup> The only state in which this was the case out of states with a z-score in our studied range was Montana, which is excluded from the data.

<sup>54</sup> See <https://morningconsult.com/governor-rankings/>

days before reelection each governor has. We also gather data from the New York Times on COVID-19 cases and COVID-19 deaths per 100,000 people per state in order to control for discrepancies between states with many cases and deaths and states with few cases and deaths. We use 7-day moving average data to smooth out the data and eliminate weekly trends and inconsistencies. Last, we gather data on monthly state temperatures and state population-weighted densities from 2020 (Edwards, Bondarenko, Tatem, and Sorichetta 2021),<sup>55</sup> to control for weather- and density-related cases.

### **Chapter Three: The Models**

We employ a fixed-effects logistic model measuring whether governors followed constituent preferences or not (discussed below). We incorporate fixed-effects to control for state-by-state differences. We specify our model, Model 1, as follows:

**Equation 1: Model 1**

$$\begin{aligned}
 \text{follconpref}_{g,t} &= \beta_0 + \beta_1(\text{dec2019approvalratings}) + \beta_2(\text{daysuntilreelection}) \\
 &+ \beta_3(\text{cases}_{\text{sevendayavg}}) + \beta_4(\text{deaths}_{\text{sevendayavg}}) + \beta_5(\text{avgtemp}) \\
 &+ \beta_6(\text{pwd}_a) + \alpha_g
 \end{aligned}$$

Following Constituent Preferences (follconpref) is a dummy variable, coded as either [0, 1], where follconpref = 1 if the governor followed constituent preferences on mask mandates (on a given date) and where follconpref = 0 if the governor did not follow preferences on mask mandates (on a given date). We use panel data from April 1, 2020-

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<sup>55</sup> We use population-weighted density, which is considered a more accurate measure than population density, since it accounts for states that are generally not dense, but have dense areas, such as the state of New York, which of course is home to New York City. We use the arithmetic mean calculation (which is also the method adopted by the US Census), rather than the geometric mean calculation. See <https://www.worldpop.org/methods/pwd> for more information.

April 30, 2021 (where  $g$  = state and  $t$  = daily data). Thus, our data examines 37 states over 394 unique dates, providing us with around 15,000 observations. If a governor implemented a mask mandate, for instance, from April 1, 2020-April 30, 2021, and the constituents in that state did *not* prefer having a mask mandate (i.e.,  $z\text{-score} < -1.96$ ), every day during that period would be coded as 0. If a governor implemented a mask mandate, for instance, from July 1, 2020-March 1, 2021, and the constituents in that state *did* prefer having a mask mandate (i.e.,  $z\text{-score} > 1.96$ ), then every day from April 1, 2020-June 30, 2020 would be coded as 0, every day from July 1, 2020-March 1, 2021 would be coded as 1, and every day from March 2, 2021-April 30, 2021 would be coded as 0.

$\beta_1$  controls for governors' approval ratings, measured in December 2019, and  $\beta_2$  controls for days until each governors' reelection.  $\beta_3$  controls for COVID-19 cases per 100,000 by state, and  $\beta_4$  controls for COVID-19 deaths per 100,000 by state.  $\beta_5$  controls for average monthly temperature by state and  $\beta_6$  controls for population-weighted density by state. Last,  $\alpha_g$  is a daily state fixed-effects term, controlling for all other differences that exist between states on a daily basis (e.g., national COVID-19 case trends).

We also include an interaction term in a second model, Model 2, which controls for the possibility of an interaction effect between days until reelection and December 2019 approval ratings, since these two variables likely influence each other (e.g., a governor with very high approval ratings may not worry much as reelection draws very close). The second model, with the interaction term, is as follows, where



$dec2019approvalratings * daysuntilreelection$  is the interaction term between  $dec2019approvalratings$  and  $daysuntilreelection$ , and all other variables remain the same.

**Equation 2: Model 2**

$$\begin{aligned}
 follconpref_{g,t} &= \beta_0 + \beta_1(dec2019approvalratings) + \beta_2(daysuntilreelection) \\
 &+ \beta_3(dec2019approvalratings * daysuntilreelection) \\
 &+ \beta_4(cases_sevendayavg) + \beta_5(deaths_sevendayavg) \\
 &+ \beta_6(avgtmp) + \beta_7(pwd\_a) + \alpha_g
 \end{aligned}$$

Last, there is a potential that days until reelection necessitates a polynomial variable. In other words, governors likely increase following constituent preferences at an *increasing rate* as they get closer to reelection. That is, there may be a curvilinear relationship between days until reelection and following constituent preferences. We include this possibility in a new model, called Model 3, by adding a term called  $\beta_7(daysuntilreelection^2)$  to our Model 1. Our Model 3 is specified as follows:

**Equation 3: Model 3**

$$\begin{aligned}
 follconpref_{g,t} &= \beta_0 + \beta_1(dec2019approvalratings) + \beta_2(daysuntilreelection) \\
 &+ \beta_3(cases_sevendayavg) + \beta_4(deaths_sevendayavg) \\
 &+ \beta_5(avgtmp) + \beta_6(pwd\_a) + \beta_7(daysuntilreelection^2) + \alpha_g
 \end{aligned}$$

### **Model 1 Results**

We run two different tests on each model: we run a standard OLS regression (in column (1)), and we run our logistic regression (in column (2)). Since coefficient results from logistic models are largely uninterpretable, we run an average marginal analysis to

determine the average marginal effect (AME) on each variable in our logistic regression (in column (3)). That said, the coefficients on the logistic regression can at least help us understand signs of each term. The AME results in column (3) should be read as the best-attainable results of the logistic regression.

Let's first examine the OLS coefficients that are of interest. December 2019 approval ratings are significant; as approval ratings increase by 1 percentage point, a governors' likelihood of following constituent preferences increases by 0.26 percentage points. This result is unintuitive: we would suspect that approval ratings increasing would lead to the ability to, on the margin, follow constituent preferences less. This is likely an issue of reverse-causality. Governors who are extremely popular are likely popular in large part because they follow constituents' preferences. So, if a governor was extremely popular before the pandemic, they are likely the type of governor who follows constituent preferences during the pandemic. Days until reelection is negative and significant, meaning that as we get one day closer to reelection, a governor's likelihood of following constituent preferences around masks increases by 0.026 percentage points, all else equal.<sup>56</sup> It is especially important to note that this holds case and deaths constant. While this may seem small, remember that this is *daily* data. This is in line with the median voter hypothesis. Looking at the seven-day case and death averages, as we increase one positive case per 100,000 people, a governor's incentive to follow constituent preferences around masks increases by 0.31 percentage points. Again, this is daily data, so even though the percentage is small, it is still highly significant.

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<sup>56</sup> Interpreted the other way: as we get one day further away from reelection, a governor's incentive to follow constituent preferences decreases by .026 percentage points.

Table 7: Model 1 Results

| <b>Follconpref</b>            | <b>(1)</b>                                | <b>(2)</b>                                     | <b>(3)</b>                   |
|-------------------------------|---|--|------------------------------|
| <b>VARIABLES</b>              | OLS multivariate fixed-effects regression | Logistic fixed-effects multivariate regression | Logistic model AMEs          |
|                               |   |  |                              |
| <b>dec2019approvalratings</b> | 0.0029261<br>(0.0004311)                  | 0.0208279***<br>(0.0028006)                    | 0.0035613***<br>(0.0004759)  |
| <b>daysuntilreelection</b>    | -0.0002634***<br>(0.0000118)              | -0.0012604***<br>(0.000067)                    | -0.0002155***<br>(0.0000111) |
| <b>cases_sevendayavg</b>      | 0.0000141***<br>(1.76e-06)                | 0.0001369***<br>(0.0000158)                    | 0.0000234***<br>(2.68e-06)   |
| <b>deaths_sevendayavg</b>     | -0.0010787***<br>(0.0000852)              | -0.0104475***<br>(0.0006738)                   | -0.0017864***<br>(0.0001118) |
| <b>avgtemp</b>                | -0.0004884<br>(0.0004379)                 | -0.0126153***<br>(0.0026902)                   | -0.0021571***<br>(0.0004583) |
| <b>pwd_a</b>                  | 0.0000491***<br>(1.42e-06)                | 0.0006713***<br>(0.0000195)                    | 0.0001148***<br>(2.85e-06)   |
|                               |   |  |                              |
| <b>Observations</b>           | 14,615                                    | 14,615   | 14,615                       |
|                               |   |  |                              |
| <b>Log Likelihood</b>         |   | -7410.1577                                     |                              |
| <b>R<sup>2</sup></b>          | 0.1759                                    |  |                              |

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

However, when there is an increase in one COVID-19 death over the seven-day average per 100,000, a governor's likelihood of following constituent preferences around masks *decreases* by 12.4 percentage points, holding case rates constant. This result is the first result that shows when governors may stray from following constituent preferences

and instead follow public health motives. This result is potentially influenced by states that for large periods of time had no mask mandates (due to constituents' preferences) and high death rates. Some governors in states with high death rates did eventually mandate masks (for instance, North Dakota) going against constituent preferences, potentially meaning that as death rates rise, governors in anti-mask states go against constituent preferences.

Looking to the logit model results, approval ratings become significant. Looking at the AME results, as approval ratings increase by one percent, a governor's likelihood of following constituent preferences increases by 0.32 percentage points. Importantly, and similar to the OLS results, as we move one day closer to reelection, a governor's likelihood of following constituent preferences increases by 0.021 percentage points, holding all else constant. This is a highly significant result. Also similar to our OLS results is that governors stray from following constituent preferences when deaths increase, indicating they follow expert guidance more so in the instance of increasing deaths. The remaining results can be interpreted similarly to how we interpreted the OLS results; indeed, it is common the AME results and the OLS coefficients are similar, though they are not identical (see Bailey 2020, Chapter 12).

These results are consistent with our predictions. That is, approval ratings and days until reelection are significant variables of interest and do indeed affect governor's likelihood of following constituent preferences around masks. That said, other variables also affect governor's decisions and are highly significant, such as death rates. It is unsurprising that governors are not solely creatures of the public's preferences and

instead respond to a whole host of measures, including public health concerns.

### **Model 2 Results**

The following model includes an interaction term between the independent variables “daysuntilreelection” and “dec2019approvalratings”, named in the model as “dec2019approvalratings\*daysuntilreelection”. This interaction term is potentially very useful to our understanding of governors’ likelihood of following constituent preferences, since the higher a governors approval rating, the less he may respond to reelection incentives and care about constituent preferences about masks, and the lower a governor’s approval rating, the more he may respond to reelection incentives and care about constituent preferences about masks.

Table 8: Model 2 Results

| Follconpref                   | (1)                                       | (2)  | (3)                 |
|-------------------------------|---|--|---------------------|
| VARIABLES                     | OLS multivariate fixed-effects regression | Fixed-effects multivariate logistic regression | Logistic model AMEs |
|                               |   |  |                     |
| <b>dec2019approvalratings</b> | 0.0018748                                 | 0.048573***                                    | 0.0083032***        |
|                               | (0.0015107)                               | (0.0098172)                                    | (0.0016745)         |
| <b>daysuntilreelection</b>    | -0.0003288***                             | 0.0003786                                      | 0.0000647           |
|                               | (0.0000941)                               | (0.0005576)                                    | (0.0000953)         |
| <b>dec2019daysuntil</b>       | 1.34e-06                                  | -0.0000337***                                  | -5.77e-06***        |
|                               | (1.92e-06)                                | (0.0000114)                                    | (1.95e-06)          |
| <b>cases_sevendayavg</b>      | 0.0000141***                              | 0.0001361***                                   | 0.0000233***        |
|                               | (1.76e-06)                                | (0.0000158)                                    | (2.67e-06)          |
| <b>deaths_sevendayavg</b>     | -0.0010795***                             | -0.0104293***                                  | -0.0017828***       |
|                               | (0.0000852)                               | (0.0006793)                                    | (0.0001127)         |
| <b>avgtemp</b>                | -0.000477                                 | -0.0140492***                                  | -0.0024016***       |
|                               | (0.0004382)                               | (0.0027342)                                    | (0.0004655)         |
| <b>pwd_a</b>                  | 0.0000491***                              | 0.0006781***                                   | 0.0001159***        |
|                               | (1.42e-06)                                | (0.0000197)                                    | (2.87e-06)          |
|                               |   |  |                     |
| <b>Observations</b>           | 14,615                                    | 14,615   | 14,615              |
|                               |   |  |                     |
| <b>Log Likelihood</b>         |   | -7405.751                                      |                     |
| <b>R<sup>2</sup></b>          | 0.9246                                    |  |                     |

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We can see that, once including this interaction effect, and looking at AMEs, approval ratings is still a significant variable, but days until reelection is no longer significant (though it is still significant in the OLS model). Why would it be the case that days until reelection is no longer significant, but the interaction term is? The answer is that the effect of this variable is now absorbed into the interaction term. And, we can see that this interaction term is highly significant, with a coefficient on our AME of  $-5.77e-06$ , thus helping us see this interaction term is essential to our model. But we can't interpret the coefficient of the interaction term in a straightforward manner since it is an interaction between two variables. Instead, we can take the partial derivative with respect to days until reelection to understand when a governor will care about approval ratings and thus care about following constituent preferences. Simplifying our Model 2 equation to just including our relevant variables, we have:

**Equation 4: Model 2, simplified**

$$\begin{aligned} \frac{\partial Y}{\partial \text{daysuntilreelection}} \\ &= \beta + \beta_1(\text{dec2019approvalratings}) + \beta_2(\text{daysuntilreelection}) \\ &+ \beta_3(\text{daysuntilreelection} * \text{dec2019approvalratings}) \end{aligned}$$

Plugging in our coefficients from the AMEs in Model 2, we have:

$$0 = 0.0000647 + -5.77e06(\text{dec2019approval ratings}) \quad \text{or approximately,}$$

$$\text{december2019approvalratings} = 11.21\%.$$

But what does 11.21% mean for our results? It means that, if a governor has an approval rating of approximately 11.21%, the effect of days until reelection upon his likelihood of

following constituent preferences is exactly zero. If his approval rating is greater than 11.21% (meaning  $\frac{\partial Y}{\partial \text{daysuntilreelection}} < 0$ ), the effect of days until reelection upon his likelihood of following constituent preferences is negative – meaning that the closer we get to reelection, the more a governor cares about following constituent preferences. And, given that *all* governors analyzed in this chapter have an approval rating above 11.21%,<sup>57</sup> we know that all governors care about following constituent preferences. If his approval rating is less than 11.21% (meaning  $\frac{\partial Y}{\partial \text{daysuntilreelection}} > 0$ ), the effect of days until reelection upon his likelihood of following constituent preferences is positive – meaning that the closer we get to reelection, the less a governor cares about following constituent preferences.<sup>58</sup> Since no governors in this chapter (or any in the state, in fact) fall into this category of  $\text{dec2019approvalrating} < 11.21\%$ , we can confidently conclude that governors do care about following constituent preferences at least to some extent in deciding whether to implement mask mandates.

We can also work through the math with the OLS model, but since the signs are flipped (days until reelection is negative, and the interaction term is positive, which is opposite from the AMEs), we will interpret our results in the opposite manner. We find that approval ratings would need to be equal to 245% for there to be zero likelihood he follows constituent preferences. If his approval ratings are below 245% (meaning

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<sup>57</sup> Connecticut’s Governor Lamont and Hawaii’s Governor Ige had the lowest approval ratings, at 32%, while Maryland’s Governor Hogan, Massachusetts’s Governor Baker, and Wyoming’s Governor Gordon had the highest approval ratings, at 69%.

<sup>58</sup> Hypothetically, this is probably the case because with such a low approval rating, a governor knows reelection is highly unlikely despite any efforts he puts forth towards winning, so he likely won’t care about reelection and following constituents’ preferences around masks.



$\frac{\partial Y}{\partial \text{daysuntilreelection}} < 0$ ), the effect of days until reelection upon his likelihood of following constituent preferences is negative – meaning that the closer we get to reelection, the more a governor cares about following constituent preferences. Given that no governors in the country have approval ratings that high, and that such an approval rating is impossible, we can confidently conclude that governors do care about following constituent preferences at least to some extent in deciding whether to implement mask mandates.

However, it is important to note here that our AMEs are *an approximation* of the beta terms in our OLS regression, as discussed above (see Bailey 2020, Chapter 12). So, our results here are only approximate and not definitive, yet nonetheless help us understand our interaction term. These results should be taken with caution and are an approximation, though they are still very helpful in interpreting our interaction term. Given that 11.21% is very low relative to governors’ actual approval ratings, we can be reasonably confident that all governors analyzed in this chapter do care about days until reelection and thus care about following constituent preferences.

### **Discussion of Model 1 and Model 2 Results**

As in Model 1, the results from Model 2 are partially consistent with our theory. All governors analyzed here care about days until reelection and consequently care about following constituent preferences around mask mandates. And governors care about approval ratings, as well, as we also found in Model 1. Moreover, in Model 2, as in Model 1, governors also care about other factors, such as case and death rates, both of

which were also significant. Thus, our results indicate that both public choice and public health incentives affect governors' actions around mask mandates.

The significance of our results in both models is not so much proving that public health incentives don't exist (because they likely will always matter on the margin, especially in a crisis like a pandemic), but instead showing that public choice incentives *do* exist. Much of the literature surrounding COVID-19 assumes benevolence, and as Boettke and Powell (2021) discuss, this should not be assumed. Our results from Model 1 and Model 2 show that benevolence should not be assumed. While governors do care about public health, they *also* follow public choice incentives and must cater to their median voter and follow constituent preferences. We believe that our data analysis presented here is consistent with both care for the public health and public choice motives. In our case studies discussed below, we take a deeper dive into several governors' actions around masks and whether they seemed more affected by public health motives or public choice theory.

### **Model 3 results**

As in our Model 1 and 2, we run this using OLS and logistic regressions, and find the AMEs from the logistic model. The results are shown in the table above. A few differences between Model 1 and Model 3 are of note: first, "daysuntilreelection" becomes positive, but if we want to understand this variable's effect on our dependent variable, *folconpref*, we must look at both *daysuntilreelection* and *daysuntilreelection*<sup>2</sup>. It makes sense that the signs are what they are on these two variables, since as we get closer and closer to reelection, governors will care more about reelection, which is what the

coefficient on  $\beta_7$  is showing. And, it should be noted that  $B_7$  is negative and highly significant. Working through the math:

**Table 9: Model 3 Results**

| <b>Follconpref</b>                     | <b>(1)</b>                                | <b>(2)</b>                                     | <b>(3)</b>          |
|--|---|--|---------------------|
| <b>VARIABLES</b>                       | OLS multivariate fixed-effects regression | Logistic fixed-effects multivariate regression | Logistic model AMEs |
|  |   |  |                     |
| <b>dec2019approvalratings</b>          | 0.0024789***                              | 0.0209991***                                   | 0.0034524***        |
|  | (0.0004227)                               | (0.0029053)                                    | (0.000475)          |
| <b>daysuntilreelection</b>             | 0.0005402***                              | 0.0027013***                                   | 0.0004441***        |
|  | (0.000035)                                | (0.0001961)                                    | (0.0000314)         |
| <b>cases_sevendayavg</b>               | 0.0000146***                              | 0.0001487***                                   | 0.0000244***        |
|  | (1.72e-06)                                | (0.0000164)                                    | (2.67e-06)          |
| <b>deaths_sevendayavg</b>              | -0.0011462***                             | -0.0112935***                                  | -0.0018567***       |
|  | (0.0000835)                               | (0.0006646)                                    | (0.0001055)         |
| <b>avgtemp</b>                         | -0.0018565***                             | -0.018814***                                   | -0.0030932***       |
|  | (0.0004327)                               | (0.0027747)                                    | (0.0004529)         |
| <b>pwd_a</b>                           | 0.000045***                               | 0.0006739***                                   | 0.0001108***        |
|  | (1.40e-06)                                | (0.0000201)                                    | (2.87e-06)          |
| <b>daysuntilreelection<sup>2</sup></b> | -5.57e-07***                              | -2.67e-06***                                   | -4.39e-07***        |
|  | (2.29e-08)                                | (1.28e-07)                                     | (1.98e-08)          |
|  |   |  |                     |
| <b>Observations</b>                    | 14,615                                    | 14,615   | 14,615              |
|  |   |  |                     |
| <b>Log Likelihood</b>                  |   | -7186.391                                      |                     |
| <b>R<sup>2</sup></b>                   | 0.2089                                    |  |                     |

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Equation 5: Model 3, simplified

$$\frac{\partial \text{follconpref}}{\partial \text{daysuntilreelection}} = 0 = \beta_2 + 2 * \beta_7(\text{daysuntilreelection})$$

Plugging in the AME coefficients,

$$\begin{aligned} \frac{\partial \text{follconpref}}{\partial \text{daysuntilreelection}} &= 0 \\ &= 0.0004441 + 2 * -0.000000439(\text{daysuntilreelection}) \end{aligned}$$

Setting equal to zero and solving, we find that *daysuntilreelection* = 505.81 *days*, meaning that when governors are more than 505.81 days away from reelection, moving one day closer to reelection actually makes them slightly less likely to follow constituent preferences, on average; however, when governors are within 505.81 days of reelection, they care more about following preferences as the election draws closer. These results imply that governors may start seriously caring about reelection about 500 days before an election. While not a discussion of governors, a political journalist found that in “the four most recent presidential races in which there was no incumbent, the nominees launched their campaigns an average of 531 days before the election took place” (Murse 2021). So, the 500-day mark seems somewhat significant in political campaigns. Again, we caution the reader that it is important to note here that our AMEs are *an approximation* of the beta terms in our OLS regression (see Bailey 2020, Chapter 12). So, our results here are only approximate and not definitive, yet nonetheless help us understand our polynomial term.

We can also work through the math using the results from our OLS regression (and the signs in the OLS and logit regressions are the same), and we find that  $daysuntilreelection = 484.92 days$ , meaning that when governors are more than 484.92 days away from reelection, moving one day closer to reelection actually makes them slightly less likely to follow constituent preferences, on average; however, when governors are within 484.92 days of reelection, they care more about following preferences as the election draws closer. These results imply, as was the case using our AMEs, that governors start seriously caring about reelection about 500 days before an election.

Other variables, like “dec2019approvalratings”, remain fairly similar to the results in Model 1, before the polynomial term was included. Thus, this polynomial model helped us check the robustness of Model 1 and show that our results don’t significantly vary whether we include this term or not. Our primary conclusion, that governors are driven both by public health concerns (like case and death rates) and public choice incentives (like days until reelection and approval ratings), remains the same.

### **Chapter Three: Potential Data Issues**

In this chapter, we assume mask preferences as exogenous, from the YouGov poll right at the beginning of the pandemic. But of course, mask preferences changed greatly during the pandemic and were likely influenced by political statements, party affiliations, and certain collective narratives to which certain communities ascribed.

Another issue related to mask mandate data is that mandates had very different (a) definitions and (b) enforcements in different states. On the first point, consider the case of

Hawaii: Governor Ige technically implemented a mask mandate in April 2020, but it did not apply to any public settings until November of 2020, when Governor Ige updated his executive order. The data we use considers that his mandate went into effect in April 2020, even though it wasn't binding or applicable to public places. Thus, the 'letter of the law' greatly varied not only across states, but also at different time periods within states, which could make our data misleading in some cases. In some states, such as Iowa (under Governor Reynolds), the mask mandate had many loopholes. Individuals needed to only wear masks in indoor public places (contrary to most other mandates, which required outdoor usage as well), but only if they are within six feet of another person for 15 minutes or more (Mervosh, Bogel-Burroughs, and Nieto 2020). Governor Reynolds' order still allowed for indoor dining, and, in addition, school districts were allowed to decide for themselves whether to require masks – and during this period, one third of Iowa's school districts did not mandate them (ibid). The mandate also did not apply to office or factory work, or to religious gatherings (Neuman 2020). Moreover, local officials resisted enforcing any mask fines, giving even less credence to her mandate. It is likely, if following the median voter hypothesis, these governors included such loopholes to cater to both sides of their constituents – those who favored masks, and those who opposed them.<sup>59</sup>

On the second point, mandates, even if on the books, were often not enforced in the same ways. Some states enforced fines, some states threatened fines, and some states

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<sup>59</sup> Some have proposed that Reynolds was all but forced into the mandate, with growing pressure from local doctors, mayors within Iowa, farmers, the Iowa State Board of Health, and even officials within her own administration (Mervosh, Bogel-Burroughs, and Nieto 2020). The Iowa State Board of Health voted in mid-November 2020 to urge Reynolds to issue a mask mandate, and the vote was 7-2 in favor (Mervosh, Bogel-Burroughs, Nieto del Rio, Arango 2020).

never had mention of fines. Local officials in Kansas, for instance, attempted to overturn Governor Kelly's mask mandate, and many local officials refused to enforce mask orders. Following her July 2020 mandate, one county commissioner called her mandate "a horrendous decision" and other county leaders attempted to overturn her mandate (Shorman and Ritter 2020). Her mask mandate did not have much enforcement, since it was up to county officials to decide whether to impose fines. Most county officials opposed the mandate, meaning enforcement of Kelly's mandate was not common. Following another mask mandate in March 2021 mandate, legislators quickly overturned her measure and denounced Kelly's actions. When a mask mandate is implemented, that does not necessarily mean it was a legally binding document, nor does it mean it was enforced.

There are two other limitations to our data that are worth considering: first, approval ratings data are gathered prior to the pandemic, which was necessary due to endogeneity issues but also means we won't be able to know how governors' approval ratings were affected throughout the pandemic. Last, our dependent variable, "following constituent preferences", is an imprecise measure based off of constituents' preferences on masks. We attempt to determine what constituents prefer from a single poll prior to mandates being implemented. Given these limitations to the data, these results should be taken with caution. That said, we do believe we have gathered the best data possible given all the endogeneity and data-availability limitation.

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## **BIOGRAPHY**

Rachael K. Behr grew up in Northern Indiana and went Hillsdale College ('18), where she studied economics and politics. While there, she found her two academic loves of economic theory and political philosophy. She received her M.A. in Economics from George Mason University in 2020 and is set to receive her Ph.D. in Economics from George Mason University in 2022. After, she will begin her academic career as a Teaching Professor of Economics at Xavier University. When Rachael isn't in the classroom, she loves reading political philosophy (especially the Ancient Greeks), baking cheesecakes, and taking her dog, Nora, on walks with her fiancé, Eric.