



Pandemics and marketing: insights, impacts, and research opportunities

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Accepted: 16 April 2021 / Published online: 12 May 2021
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Abstract

Pandemics have been an unfortunate but consistent facet of human existence over centuries, threatening lives as well as livelihoods globally. Disconcertingly, their frequency persists, with four “major” pandemics disrupting the planet in the last 65 years and more expected in the future. While many of the economic and health consequences of pandemics are well-documented, their marketing implications are less understood. Addressing this gap, we develop a broad, conceptual framework to highlight the characteristics and impacts of pandemics as they relate to marketing. We first identify four macro-level forces that characterize pandemics and highlight their marketing implications. Next, using the 7P marketing mix model as the organizing structure, we discuss these implications at a micro-level and identify a set of research questions to stimulate further inquiry, not only to generate deeper insights pertaining to pandemics’ marketing implications but also to envision new developments in these areas. Finally, we identify pandemics’ disproportionate impacts on and implications for some industry sectors, including healthcare, retail, education, hospitality, and tourism.

Keywords Pandemics · Macro-level forces · 7P model · Industry sectors · Marketing implications · Research opportunities

Introduction

Pandemics are epidemics that occur “over a very wide area, crossing international boundaries, and usually affecting a large number of people” (Kelly 2011, p. 540). They vary in severity in terms of mortality and devastation, having accounted for as many as 200 million deaths (Black Plague, 1347–1351) to fewer than 1000 (SARS, 2002–2004). Given

increasing globalization, urbanization, and international travel, experts believe that pandemics will re-occur (Madhav et al. 2017; Saunders-Hastings and Krewski 2016), though their timing and severity remains unpredictable (Taubenberger et al. 2007). Despite their prevalence, frequency, and serious consequences, pandemics’ effects on marketing have been surprisingly overlooked in literature. In pursuit of filling this gap, we posit that pandemics profoundly alter the market and

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John Hulland and Mark Houston served as Editors for this Article.

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customer landscapes, leading to key transformations that impact firms' marketing-related activities as well as industries more broadly. In particular, we propose a conceptual framework (see Fig. 1) in guiding our understanding of the interplay between pandemics and marketing. Our framework has two primary dimensions. The first dimension centers on four major macro-level forces that characterize pandemics—a tension between *lives* vs. *livelihoods*, *economic contraction*, *scarcity*, and *uncertainty*. Clearly, a pandemic's severity will dictate the degree to which each of these occurs. However, we propose that the convergence of these four macro-level forces distinguishes pandemics from other crises and environmental events. For instance, a crisis like an economic depression involves economic contraction, but its direct effect on human health is less certain. Further, such an event is unlikely to engender a critical focus on human lives versus livelihoods, one of the macro forces enmeshed with pandemics. Natural disasters, like tsunamis and hurricanes, have the potential to affect lives and livelihoods but they tend to be localized and typically involve relatively more short-term and transient consequences. In contrast, pandemics are global, and their effects are felt over extended periods, exacerbating the effects on other macro forces including uncertainty, scarcity, and economic contraction, while engendering a tension between lives and livelihoods. We elaborate on each of these forces later.

The second component of our framework focuses on the marketing implications of these four macro forces characterizing pandemics. In exploring the different marketing

implications, we draw from the seven Ps of the marketing mix (7Ps framework; Booms and Bitner 1981). This well-known and accessible framework includes the four conventional Ps of marketing (*Product*, *Price*, *Promotion*, and *Place*) and the three Ps often highlighted in services marketing (*People*, *Processes*, and *Physical Evidence*). These seven Ps enable the use of a widely recognized structure to comprehensively capture the marketing consequences of the four pandemic-related macro forces. This approach also provides a lens into the imbalance that pandemics induce between supply and demand. Due to the disruption in the supply chain, the availability of goods is reduced and due to constraints on the mobility of customers, the demand side can be impacted negatively. Consequently, the 7P model serves to highlight the various effects of pandemics on customer behavior, marketing strategy, and other marketing-related outcomes. Further, across each of the seven Ps, we identify areas in marketing impacted by a pandemic and a set of questions for further research (see Table 2).

Pandemics also have differential impacts on various industry sectors. Early pandemics, including the Black Plague (1347–1351) and Russian Flu (1889–1892), significantly impacted agricultural sectors and other areas where laborers and artisans were predominantly employed. However, with the world economy becoming increasingly reliant on services, the industry sectors that pandemics have primarily impacted has shifted over time (see Table 1). Consequently, more recent pandemics have impacted industries like education,

Fig. 1 Conceptual framework

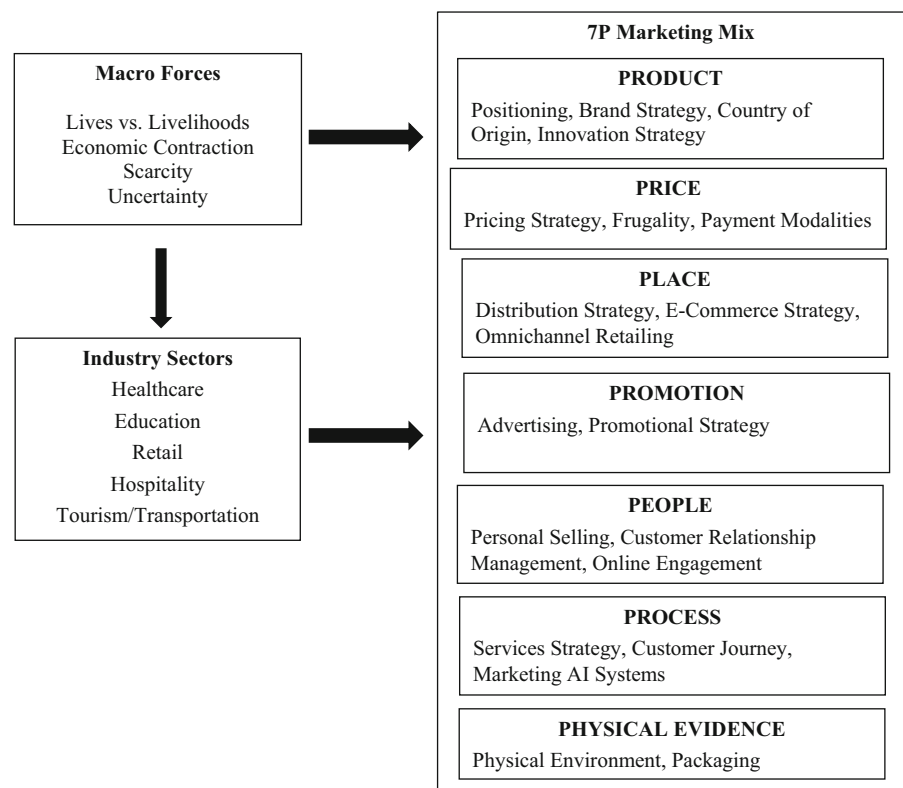


Table 1 Major pandemics in history

Point of comparison	Black Plague	Russian Flu	Spanish flu	Asian flu	Hong Kong flu	SARS	COVID-19
Duration	1347–1351	1889–1892	1918–1920	1957–1958	1968–1970	2002–2003	2019–present
Global deaths	75–200 M ^a	1 M ^b	50 M ^{b,c}	1.1M ^{b,c}	1M ^{b,c}	774 ^{b,c}	3.16 M (as of April 30, 2021) ^d
Mitigation approaches	Quarantine Social distancing	Belief that fasting would ‘starve’ the disease School closures	Quarantine Social distancing Face masks Closure of schools and public places	Localized ban of public gatherings	Localized ban of public gatherings	Quarantine Face masks School closures	Quarantine Social distancing Face masks Closure of schools and public places
Demand contraction	“Depression of the late Middle Ages” ^e	Recession	Global recession 5.5% drop in U.S. economic activity	2% drop in economic activity	0.07% drop in Global GDP	Recession –1% GDP impact in China –2.63% GDP impact in Hong Kong	Global recession 5.2% estimated drop in global GDP
Industry sector(s) primarily impacted	All (<i>due to mortality magnitude</i>)	Agriculture Healthcare Education	Coal/copper mining Shipbuilding Healthcare Education Retail Hospitality	Healthcare Education	Healthcare	Healthcare Education Retail Hospitality Tourism Transportation	Healthcare Education Retail Hospitality Tourism Transportation

^a Given record keeping of the time, estimates widely vary. See <https://www.nature.com/articles/nm0905-927.pdf> and https://www.en.wikipedia.org/wiki/Black_Deathhttps://www.historytoday.com/archive/black-death-greatest-catastrophe-ever

^b Noor and Maniha (2020)

^c <https://www.cdc.gov>

^d <https://covid19.who.int/>

^e <https://eh.net/encyclopedia/the-economic-impact-of-the-black-death/>

healthcare, retail, hospitality, travel, and tourism. In recognition of the link between pandemics and different industries, the last part of the manuscript focuses on how the four macro forces have affected some of these industries, particularly during 20th and 21st century pandemics. Figure 1 captures the various links between the abovementioned macro forces, the seven Ps, and the industry sectors.

Contributions

Insights from this research make several novel contributions to the marketing literature. First, we highlight the macro as well as micro impacts of pandemics in general, focusing beyond COVID-19, to enable a more generalizable and differentiated perspective on the marketing implications of pandemics. Given the expected continual occurrence of pandemics in the future, we anticipate that our cross-pandemic emphasis will provide greater longevity in understanding the impact of pandemics on marketing. Second, the use of the 7P framework provides a comprehensive perspective on various marketing consequences of pandemics. Although it is impractical to cover all possible ramifications exhaustively, the use of this framework affords a holistic representation of effects relevant for both customer behavior and marketing strategy. Third, the proposed research questions identify important areas for future research, with the potential to address specific issues for multiple audiences. Fourth, we deliberate on pandemics' influence on specific industry sectors. Overall, we anticipate that the insights from this research can help highlight new research opportunities to understand specific marketing domains and how they have been and may be affected by pandemics. They can also aid practitioners in assessing the effects of pandemics on the marketing strategies of their firms.

An important caveat is in order regarding the inevitable trade-off between breadth and depth of coverage of the wide range of issues involved in pandemics. Our goals for this manuscript are to (a) focus on pandemics in general, and (b) delineate macro forces as well as micro implications. As a result, we provide substantial exposure to the breadth of issues, with a more limited perspective on their depth. Moreover, the 7Ps lens helps us focus on specific pandemic-related marketing implications that are most important to consider moving forward. Consequently, we believe that despite the limited depth of issues covered, the takeaways are insightful for various audiences.

A brief overview of pandemics

A pandemic represents the emergence of a disease to which most people lack immunity, generating serious and contagious illness that can readily spread across international borders and have substantial implications (Madhav et al. 2017). For

instance, the Black Plague is purported to have killed one-tenth of the global population,¹ significantly impacting workforce capacity and stimulating new labor laws. Preparedness and mitigation efforts vary not only across pandemics but also across different phases, namely: the pre-pandemic period, the spark period, the spread period (Madhav et al. 2017), and the recovery period. The *pre-pandemic* period occurs prior to a pandemic, and activities in preparation for an impending pandemic can include customer stockpiling and public health workforce training. The *spark period* represents the pandemic's onset, and activities such as contact tracing, quarantine, and isolation are often mandated. During the *spread period*, when a pandemic takes off, measures used during the spark period are continued, and treatment—though essential—may be limited and its efficacy uncertain. Across the different stages of a pandemic, various mitigation approaches have the potential to intensify scarcity and uncertainty. With stringent protective measures, along with uncertainty regarding the severity and pathway of a potentially highly infectious and deadly pathogen, there may be significant demand contraction across some industry sectors, thereby affecting multiple stakeholders including businesses and customers. Finally, the *recovery period* represents a significant decline in infections and mortality, and relaxation of policy-mandated mitigation efforts. Table 1 compares major pandemics in history that affected a wide number of countries, spread quickly, and experienced different levels of severity.

Conceptual framework

The complex and wide-ranging influence of pandemics on marketing activities can be best understood by recognizing that pandemics engender a dynamic tension between lives versus livelihoods (Jain et al. 2021), disrupt economic activities, and generate widespread scarcity and uncertainty (Vo and Thiel 2006). Our conceptual framework (Fig. 1) proposes that these four forces, namely *lives versus livelihoods*, *economic contraction*, *scarcity*, and *uncertainty*, have consequences across marketing's 7Ps (product, price, place, promotion, people, process, and physical evidence) with disproportionate impacts on some industry sectors.

Macro forces characterizing pandemics

The four macro forces delineated below are inter-connected, and we propose that it is their convergence that is unique to pandemics and impacts customers and firms.

Lives versus livelihoods During the last three stages of a pandemic (the spark period, the spread period, and the recovery

¹ http://www.bbc.co.uk/history/british/middle_ages/black_impact_01.shtml

period), the tension between lives and livelihoods reflects an underlying trade-off between the public health and economic health, respectively. Although a pandemic takes a toll on both, actions taken to address the pandemic induce an inherent tension vis-a-vis an emphasis on one or the other. For example, while government-mandated non-pharmaceutical interventions, such as lockdowns, are necessary to mitigate contagion and save lives, such interventions may compromise livelihoods (Jain et al. 2021). Yet lifting lockdown restrictions alone may be insufficient to protect livelihoods (Charumilind et al. 2020). Indeed, even without government-mandated non-pharmaceutical interventions, individuals may independently choose to limit certain behaviors to minimize their risk for adverse health outcomes. In support of this lives versus livelihoods tension, Eichenbaum et al. (2020) analytically show that “people’s decision to cut back on consumption and work reduces the severity of the epidemic, as measured by total deaths,” but these decisions “exacerbate the size of the recession caused by the epidemic” (p. 1).

This tension between lives and livelihoods may also manifest in other ways, e.g., in the ease and comfort with which individuals re-engage in daily routines (Charumilind et al. 2020). Different mitigation approaches to control a pandemic also influence individuals’ employment and discretionary choices to re-engage in spending (Correia et al. 2020). Therefore, decisions on when and how to ease lockdowns are moral and economic dilemmas facing policymakers as they consider the trade-off between the health of citizens and that of their economies, especially in the early stages of pandemics when uncertainty is relatively high. During the Spanish flu, managers resisted closure of transportation and businesses because they believed it would cause economic distress (Tomes 2010). During COVID-19, Sweden was initially lauded for its minimalist shutdown but experienced one of the highest mortality rates per capita six months later.² Some non-pharmaceutical mitigation approaches, such as wearing masks and quarantines, can also be controversial. Mask mandates during the Spanish Flu were unpopular, and campaigns shaming people who refused to wear a mask were common. During COVID-19, there is a polarization of attitudes towards these measures within the U.S., politicized and demarcated along the Democratic-Republican divide, with Blue states mainly in favor (converging with “saving lives” viewpoint) and Red states primarily opposed (consistent with “saving livelihoods” viewpoint). In essence, to some, this lives versus livelihoods tension represents a potential zero-sum game. To support and protect lives, the economy and customer confidence might be stalled. To support and revive the economy and customer confidence, lives might be placed at risk.

Economic contraction Pandemics can lead to significant economic contraction. The World Bank’s economic simulations indicate that a major pandemic could reduce world GDP by roughly 5% (Burns et al. 2006). The most severe pandemic in the twentieth century, the Spanish flu, resulted in a GDP loss of 3%, 15%, 17%, and 11% in Australia, Canada, UK, and USA, respectively (McKibbin and Sidorenko 2006). During the second quarter of 2020, the International Labor Organization estimated that over 400 million full-time jobs were lost globally due to COVID-19,³ and the World Bank forecasted a 5.2% contraction in global GDP though the rapid spread and human health toll may elevate this economic damage to potentially 8%.⁴

Economic contraction is likely to impact various economic indicators. For example, the Spanish flu led to “a relative decline in manufacturing employment, manufacturing output, bank assets, and customer durables” (Correia et al. 2020, p. 3), and a related increase in financial defaults by businesses and households. The economic impact may also be enduring, depending, in part, on the infectiousness of the pathogen, mortality rate, and duration of mitigation efforts (e.g., social distancing and closure of in-person gatherings). Consistent with this expectation, economic contraction effects from the Spanish flu in 1918 were persistent until 1923 (Correia et al. 2020).

Scarcity During pandemics, scarcity can occur in different ways; we identify three distinct forms in which it may manifest. First, depletion of financial resources, resulting in *financial scarcity*, is a key consequence of pandemics, stemming from business closures and job losses. This reduction in an individual’s subjective wealth may promote risk-averse financial behaviors (Millet et al. 2012). It is also possible that customers may engage in risky behaviors, particularly when their relatively low economic standing is salient (Adamkovič and Martončík 2017). A second type of scarcity—*scarcity of essentials*—reflects the lack of availability or inadequate inventory of essential products and services (e.g., food, healthcare). Due to supply disruptions and/or demand shocks resulting from customers’ stockpiling behaviors, availability of essentials may dramatically decline. In addition, there may be a shift towards purchase from fresh to packaged foods, leading to a dilution in dietary quality and food security (Martinez et al. 2019). A third type of scarcity arises from the absence or sharp reduction of social contact, which we refer to as *relational scarcity*, whereby individuals are unable to personally interact with others. To mitigate contagion, approaches such as social distancing, mask wearing, and

² <https://www.ft.com/content/66fca681-ff59-48ca-802d-b0f97dead4ee>

³ <https://www.cnbc.com/2020/06/30/coronavirusexpected-to-cost-400-million-jobs-in-the-secondquarter.html>

⁴ <https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world>

lockdowns are likely to increase feelings of social isolation. Relationship-driven by nature, customers who face relational scarcity are likely to experience profound affective, cognitive, and behavioral consequences (Banerjee and Rai 2020).

Uncertainty Pandemics are characterized by a reduced ability to predict the future, a perceived loss of control, and the double jeopardy of how responses to the pandemic generate additional unforeseen outcomes. Consequently, pandemics engender high uncertainty, defined as “an individual’s perceived inability to predict something accurately” (Milliken 1987, p.136). During pandemics, uncertainty occurs across many domains, including the extent and timing of economic recovery and pathogen containment as well as the reliability and believability of information (Orso et al. 2020). Moreover, high uncertainty reduces the propensity to spend (Greasley et al. 2001), fostering further economic contraction.

The multi-faceted nature of uncertainty often precipitates significant fear and anxiety (Taylor 2019). SARS elevated anxiety levels after travelers and conference visitors imported cases to Toronto (Stinson et al. 2004). Notably, the SARS mortality rate was much lower than that of other pandemics, yet 50% of the recovered SARS patients’ anxiety level did not reduce after the pandemic (Holmes et al. 2020). While perceived threats to health, life, and economic sustenance drive pandemic-related anxiety, continued exposure to negative information and misinformation can also engender adverse mental health outcomes. Misinformation further heightens uncertainty and is common during a pandemic, often spread through word of mouth (prevalent during the Black Plague and Spanish Flu), newspapers (common during the Spanish Flu), and more recently through social media and the internet. During SARS, rumors that spread through these and other mechanisms exacerbated the spread of social panic (Qiu et al. 2018). Some scholars, recognizing that pandemic-related anxiety is distinct from other types of anxiety, have created pandemic-specific fear, anxiety, and stress measures (Ahorsu et al. 2020; Lee (in press)).

Marketing impacts: The 7Ps model

We next examine the impact of the macro-level forces on marketing across each of the seven Ps: product, price, place, promotion, people, processes, and physical evidence. We explore specific impacts due to these forces, and how these may be particularly consequential in certain industries. Our coverage of the 7Ps reinforces significant issues for both customer behavior and marketing strategy, leading to several research questions that we propose for future investigations specific to each of the 7Ps and summarize in Table 2.

Product We first deliberate on a pandemic’s implications specific to a firm’s product or service offerings, focusing on positioning, brand strategy, country of origin, and innovation strategy. For this first P in our framework, we focus on these four elements, which are relevant for both physical products and services. Further, each of these elements reflects a core aspect of ‘Product’ and, as we discuss below, a pandemic generates distinctive considerations for each.

Positioning Positioning needs to be consistent with customers’ mindsets as they face the four macro forces. In general, due to financial scarcity, marketing strategies need to recognize that customers may become more value conscious and focused on a product’s durability (Tully et al. 2015). Customers facing financial scarcity also tend to emphasize purchases that are self-focused rather than other-focused (Roux et al. 2015). Thus, positioning a product or service during a pandemic that endorses utility based on self-enhancement, self-protection, and survival is likely to be beneficial, especially during the pandemic’s spread phase. When customers experience relational scarcity due to social distancing and lockdowns, positioning has the opportunity to communicate how the product or service can fill this relational gap through mechanisms that reinforce self-brand connection and empathy. Uncertainty, in cohort with the lives versus livelihood tension, also reinforces the need for a firm to position with clear communication or transparency on how the pandemic may influence production and delivery. Accounting for the four different macro forces, a key question for emergent research is how positioning can build stronger connections and instill customer confidence in the face of challenges from a pandemic, yet account meaningfully for the product’s historical positioning. For example, during the spark period of COVID-19, Guinness launched a St. Patrick’s Day campaign reinforcing its more than 260-year history, perseverance in hard times (including that of prior pandemics), and sense of spirit and community that resonated with customers.⁵

Brand strategy During a pandemic, the traditional sources of brand strength, e.g., its awareness, quality and non-quality related associations, as well as the loyalty it enjoys (Keller et al. 2002) may be less consequential. This is so because in part, scarcity of a favorite brand may prompt customers to switch to a new brand. Consistent with such a potential erosion of loyalty, during the spark and spread periods of COVID-19, 75% of U.S. customers switched brands primarily due to value, availability, and convenience.⁶ Such brand

⁵ <https://today.yougov.com/topics/consumer/articles-reports/2020/04/07/ad-month-us-guinness>

⁶ <https://www.zdnet.com/article/mckinsey-three-factors-drive-consumer-loyalty-in-the-next-normal/>

Table 2 Research opportunities

7Ps	Impact factors	Proposed research questions
Product	Positioning	What alternatives to value-based positioning strategies are most effective during different phases of a pandemic? How do the macro forces generate synergies or conflict for positioning strategies and their effects on customer judgement and choice? How does the need for these positioning pivots vary across industries? How do the macro forces during pandemics influence individuals' reliance on stereotypes in processing, judgment, and choice both during and after a pandemic?
	Brand Strategy	To what extent and why will different forms of pandemic-driven scarcity dampen the benefits of brand loyalty? How can brands remain relevant to customers as they face a new customer journey? As contactless journeys become a new norm, how can brands provide valuable touchpoints in a customer journey? How can global brands manage speed of action when faced with long-term uncertainty, especially if regions experience different degrees of pandemic severity?
	Country of Origin	What are the short-term and long-term influences of a pandemic on customer ethnocentrism, animosity, and product demand? How does this vary across industries? Will country-of-origin, especially as it relates to the source of the pandemic, influence customers' choice of essential and non-essential products during a pandemic?
	Innovation Strategy	What are innovation process effects (e.g., knowledge sharing, creativity) due to changes in physical co-locations of new product development teams caused by pandemics? Are opportunities for reverse innovation (frugal innovations from developing countries to developed countries) increased? What are some practices for ensuring effective reverse innovation processes within firms? Will innovations created during a pandemic generate disruptive shifts in customer behavior after the pandemic? What segments of customers are more likely to experience disruption?
Price	Pricing Strategy	Which pricing strategies are likely to be more effective in stimulating demand for products during pandemics? How do pricing strategies during a pandemic compare to pricing strategies during recessions? How do these vary by brands, markets, and firms? Is pandemic-induced price sensitivity transient or a long-term behavioral shift?
	Frugality	Will pandemic-induced frugality continue after a pandemic subsides? Is it relevant to certain product categories, such as for high vs. low involvement products? Under what conditions might pandemic-related frugality trigger risk aversion versus risk seeking? How can companies and policy makers develop policies to minimize pandemic-induced hoarding and herd behavior?
	Payment Modalities	How do mitigation efforts, scarcity, and uncertainty during a pandemic impact customers' ability to manage the trade-off between easy credit card payments and unhealthy impulsive purchases? Does this depend on customer motivation as reflected in regulatory focus behavior? What are the optimal contexts under which different fintech alternatives may be useful in handling the constraints of pandemic-induced transaction modes?
Place	Distribution Strategy	Are new distribution strategies needed that fulfill flexibility during a pandemic but also provide efficiencies after a pandemic? How will these vary across industries? How will pandemics impact governance structures (e.g., number of intermediaries, commission sharing) in distribution channels? What will be the effect of a pandemic on channel partners located in different places in the supply chain or different locations geographically?
	E-commerce Strategy	Will pandemics affect the patronage of pure-play e-commerce firms? Will these behaviors differ across product categories (e.g., luxury vs. essentials) or by types of customers? How enduring is the impact due to a pandemic? What might predict this trend to be short-term versus long-term?
	Omnichannel Retailing	Can pandemics shift the nature of customer engagement with retailers? Further, do some of these behavioral changes persist following the pandemic? Will pandemics create a long-term shift in the balance of integrating online and offline retailing, altering the nature of omnichannel retailing?
Promotion	Advertising	What will be the long-term implications of reducing advertising spending during a pandemic? What should firms do to enhance the effectiveness of their advertising spending, media mix, and messaging during a pandemic? Will this vary across firms or industries? When should firms alter their advertising strategies? What characteristics of a pandemic or stages of the pandemic (e.g., pre-pandemic, spark, spread, recovery) impact this timing?
	Promotional Strategy	Will promotional strategies that reassure customers about a firm's stability and its support for customers during the pandemic elevate firm sales or customer loyalty? How will specific promotional strategies that emphasize value during a pandemic generate long-term consequences?
People	Personal Selling	Will new technology tools (e.g., virtual reality) for communications with customers move to replace in-person personal selling? How can firms most effectively rely on technology for personal selling, so that a firm can be agile when faced with heightened uncertainty and benefit from technology and in-person selling? How can personal selling activities be effectively used during pandemics? How will this effectiveness vary across industries?

Table 2 (continued)

7Ps	Impact factors	Proposed research questions
Process	CRM	What will be effective customer acquisition and retention strategies during pandemics? Are customers more likely to respond to monetary or social rewards? What will be the role of loyalty programs during a pandemic? Given the differential social networks during pandemics, what is the role of online vs. personal word-of-mouth in CRM? What should be the focus of a firm's CRM efforts?
	Online Engagement	How can firms offer an online experience to mitigate social isolation during pandemics? Can such presence replace physical human presence? What mechanisms can mitigate the negative consequences of pandemic-driven social isolation? What role, if any, should firms play?
	Services Strategy	Can human service delivery be effectively replaced with technology-enabled delivery? Will this be temporary during the pandemic, or create a long-term shift in service delivery? How can firms most effectively adapt their service strategies when faced with strict mitigation policies during a pandemic's spark and spread periods? Which types of services are least and most likely to be affected by a pandemic?
	Customer Journey	Given heightened uncertainty and scarcity in a pandemic, will customers take more time in their decisions across stages within the customer journey? For collective journeys, will mitigation and relational scarcity create an in-group versus out-group lens on customer decision making during a pandemic?
Physical Evidence	Marketing AI Systems	Does a pandemic accelerate adoption of AI more quickly in some sectors than in others? During pandemics, how will customers, firms, and collaborators (e.g., hospitals, medical professionals) use AI and automated marketing systems for interfaces such as purchase, ordering, post-ordering, and customer support? Will this generate long-term trends in different industry sectors? What are the long-term positive and negative implications for firms, customers, and society from a dramatic pivot toward use of AI during a pandemic?
	Physical Environment	What environmental features enhance perceptions of product quality and safety of service/locations during pandemics? How do these features impact choice and create long-term perceptions? What are the short-term and long-term implications when physical surroundings are inconsistent with the firm's messages? How does this impact customer judgment and choice during a pandemic and after the pandemic?
	Packaging	Will packaging modifications made during the pandemic (e.g., layer of transparent plastic wrapping meant to ensure safety) positively affect customers' perceptions or adversely affect their fear of contagion, perceptions of product quality, or associations between the product and the pandemic? How can new forms of packaging reinforce quality and safety, and become enduring in the long term? What are the core benefits of packaging and how are they altered during a pandemic? How might preference for these benefits vary by product type and customer type?
Industry Sectors		As technology becomes more prevalent in the workforce and customers' everyday life, will it shift the degree of impact on different industry sectors? Will it open the door for new industry sectors to emerge? Recognizing that a pandemic can impact multiple industry sectors, how can firms create new business models that incorporate new technologies, reflect the shift in society preferences, and provide new value-creation potential? Since pandemics differentially impact various industry sectors, will firms strengthen their competitive advantage when they align with firms in other industry sectors? For those who contract the virus and survive, what implications does uncertainty regarding potential long-term health effects have across different industries for customer perceptions, decision-making, and choice? How will a pandemic transform retail that depends on smooth operations, especially across geographic boundaries? If customers temporarily refrain from tourism during a pandemic, can AI offer a valuable substitute for such experiences (e.g., through augmented reality)? Does this have a long-term effect on tourism-related customer journeys?

switching could also open the door for new customer-brand relationships and create new challenges for high equity incumbent brands. Further, economic contraction, scarcity, and uncertainty will likely result in an evolution of customer needs, generating hurdles as well as new opportunities for brands to offer new features and experiences that address health, safety, and financial concerns. In addition, customers may seek brands that personify comfort, reliability, sincerity, and warmth rather than excitement, adventure, and thrills. Given heightened uncertainty, brand managers will need to carefully

assess whether this evolution of customer needs will have a short or long-term impact while balancing speed of response with caution. Hesitating to make pivots during a pandemic can prove costly, yet actions during a pandemic may have lasting effects.

Country of origin A product's country of origin and the concomitant country-level associations carry import for customer judgment and choice (Chen et al. 2014; Maheswaran 1994). Given the lives versus livelihood tension and the uncertainty

stemming from the unpredictable severity of a pandemic, governments may ban trade and travel with countries where the pandemic is thought to have originated, centered, and escalated. Ironically, the Spanish Flu moved so swiftly and indiscriminately that it was not easily attributed to any specific country (Jones 2005). However, with the plague's devastation in Europe, colonial powers swiftly moved to control and sometimes ban travel and trade with and between their colonies. The tea industry in Sri Lanka, then a British colony, faced particular threat and the colonial government banned all travel from neighboring countries (White 2020). Since most of the goods were imported from the colonies, such trade control resulted in a boom for domestic industries.

Due to a generalized belief regarding a pathogen's country-of-origin (Markel 1999), customers may avoid people perceived to be from the same country as contact with them may evoke perceptions of vulnerability to the infection (Schaller and Neuberg 2012; Faulkner et al. 2004). Such stereotyping may result in lower consumption of products sourced from target countries. For example, Chinese restaurants reported an immediate drop in business due to the perceived origins of COVID-19 (Carman and Heil 2020). With high uncertainty and related anxiety during a pandemic, animosity towards products from specific countries may lead to adverse impacts on globalization.

Innovation strategy Pandemics can be a catalyst for innovation (Harris et al. 2020), not only to fight the pandemic, but also to address various new concerns during the spark, spread, and recovery periods. The recovery period from Black Plague, which generated significant labor shortage, saw the development of hourglasses and eyeglasses to improve working conditions (Pamuk 2007). Similarly, SARS accelerated the growth of e-commerce in China during its spark and spread periods, as customers being quarantined needed to shop and work from home (Huddleston 2020).

Given heightened uncertainty and scarcity, pandemics disrupt traditional innovation processes, forcing firms to improve and experiment for speedier execution of ideas (Moorman and Miner 1998) and rapid scaling (Harris et al. 2020). Although the various mitigation efforts during the spread period may impact innovation, research shows that longer non-pharmaceutical interventions during the Spanish flu led to higher patenting rates (Berkes et al. 2020). Yet it is important to note that mitigation efforts during the Spanish flu primarily impacted theaters⁷ and schools, whereas SARS and COVID-19 forced the closure not only of these establishments but also of non-essential organizations. As a consequence, these non-essential organizations were required to develop

new skills and/or form alliances for their innovation efforts. During COVID-19, numerous distilleries pivoted to produce bottles of hand sanitizer,⁸ and Ford Motor Company transformed its production facilities while collaborating with GE Healthcare to build essential, life-saving ventilators (Beresford 2020). Another strategy is to focus on a series of small solutions that do not require new technologies but can have a significant impact (Pisano 2020), e.g., providing curb side pick-up when quarantine restrictions prevent customers from entering retail establishments. Firms can also pursue radical innovations that, if successful, result in higher financial competitive advantage (Rubera and Kirca 2012). Efforts that help ease the tension between lives and livelihoods offer new avenues for living with the pandemic, such as the development of robot nurses as service providers in hospitals (Luo and Galasso 2020). While innovations created during a pandemic have the potential to advance customer welfare, their post-pandemic long-term effects are unknown and offer important areas for future investigations.

Price Based on the elements within the 7P framework, our discussion of the interplay of pandemics and "Price" includes pricing strategy, frugality, and payment modalities.

Pricing strategy A firm's pricing strategy communicates important information to customers and the marketplace (Dolan 1995), and its effectiveness is contingent on factors on the demand side as well as the supply side. Demand-side factors include customer price sensitivity, ease of price comparisons, and brand strength. Supply-side factors include the firm's resources, competitive pricing, and the potential for supply disruptions. To effectively address the needs of customers, capitalize on the opportunities, and mitigate the threats in the firm's environment, pandemics, with their potentially dramatic and disruptive effects on demand- and supply-side factors, will force firms to reassess their pricing strategies.

During pandemics, price sensitivity tends to increase for several reasons. First, with household disposable income being a determinant of price elasticity (Hoch et al. 1995), customers experiencing financial scarcity (or health setbacks) that affect their purchasing power may reduce purchase of some products, switch to lower-priced products, and/or forego certain purchases altogether. Second, customers tend to become more price sensitive when it is relatively easy to comparison shop (Dolan 1995) as with online shopping, which became prevalent during SARS and COVID-19. Third, pandemics often shift customers' living situations, e.g., multi-generational families living together and new behaviors within households like home schooling and pursuing fitness at home. Firms need to recognize these new settings as they

⁷ <https://www.nationalgeographic.com/history/article/how-cities-flattened-curve-1918-spanish-flu-pandemic-coronavirus>

⁸ <https://www.distillerytrail.com/directory-distillery/tags/hand-sanitizer/>

are likely to affect not only customer preferences but also their price sensitivity. Importantly, firms need to understand if pandemic-induced price sensitivity is transient or has long-term implications.

Retailers, when faced with higher customer price sensitivity, can choose to discount items to increase demand. However, they need to be aware that total category sales are highest when only some of the category items are on sale, and total category sales begin to fall after this inflection point (Anderson and Simester 2001). In addition, retailers with a just-in-time inventory approach may be hard-hit during a pandemic's spark period when essentials cannot be readily replenished, and customers are able to shop for these items elsewhere. Thus, a firm's pricing strategy must account for its in-stock conditions (Hobbs 2020).

In general, firms with fewer resources and smaller margins may have less room to compete on price as compared to their larger rivals. This issue becomes particularly problematic due to customers' greater price sensitivity during a pandemic-led economic contraction. However, a key research question is whether customers' greater price sensitivity may be an advantage for a low-priced competitor. Although larger firms with more resources may typically be in a better position to offer lower prices during a pandemic, this strategy presents a dilemma because it offers the potential to increase sales and market share in the short term yet decrease customer satisfaction and net profit in the long term (Chou and Chen 2004). Furthermore, due to manufacturing bottlenecks and potential supply shortages, especially during the spark period, firms will need to manage channel partners to ensure they do not engage in price gouging, a practice which can damage customer relationships. While increased costs may be an acceptable reason to raise prices, price increases due to scarcity and associated customer vulnerability may be perceived as exploitative and cause harm to the reputations of the firm and its brand(s). However, more research is needed to address the critical question of whether customers' greater price sensitivity may indeed serve as an advantage for a low-priced competitor.

Frugality A pandemic may induce frugality, “a unidimensional customer lifestyle trait characterized by the degree to which customers are both restrained in acquiring and resourceful in using economic goods and services to achieve longer-term goals” (Lastovicka et al. 1999, p. 88; also see Kadlec and Yahalom 2011). Three primary reasons engender greater frugality during pandemics: economic contraction (Madhav et al. 2017), financial scarcity due to adverse employment effects (Goldsmith et al. 2014), and the associated uncertainty and perceived loss of control leading to risk aversion (Birkner 2013; Egol et al. 2010). Frugal customers, being both value and price conscious (Shoham and Brenčič 2004), tend to buy and consume less, are less materialistic (Rose et al. 2010), and

save more money (Rick et al. 2008). In addition, frugality is associated with a longer-term orientation (Bearden et al. 2006), which may strengthen during a pandemic and even during the recovery period, resulting in greater demand for sustainable products and essentials during pandemics (Di Marco et al. 2020). Anecdotal evidence suggests that COVID-19 has induced higher frugality, with 89% of Indians cutting their spending (Das 2020), and U.S. customer spending plunging 13.6% in April 2020.⁹ An intriguing, related question is whether this frugality will continue even after a pandemic subsides, and whether it is dependent on the product category, such as high versus low involvement products.

Pandemics induce panic buying and a concomitant tendency to hoard. This is particularly likely during the pre-pandemic period for essentials that are relatively inexpensive, easy to inventory, and perceived to be scarce. Customers may also follow the behavior of referent others and engage in herd behavior, exacerbating the overstocking situation (Baddeley 2020). Companies and policy makers can minimize such negative behavior by providing specific purchase norms, such as limiting the amount that can be purchased at a given time or per household. Further research is needed to address efficacy of limiting availability and rationing in developing such policies.

Payment modalities Pandemics engender significant changes in how customers conduct monetary transactions due to social distancing and isolation. As customers exchange money for goods and services, a pandemic incites businesses to shift to pandemic-compatible payment options like credit and debit cards, e-banking, and mobile payment apps. This shift is more dramatic in cash-based societies, given concerns of the accompanying hygiene and safety considerations for cash transactions.

While the use of credit cards carries the upside of reduced contagion, there are downsides to it as well. Such use increases the tendency to engage in unhealthy behaviors like impulsive purchases (Thomas et al. 2011). Also, “painless” or easy payment methods such as credit cards minimize the post-purchase connection with the brand purchased (Shah et al. 2016). In a pandemic context, the challenge is to discourage the use of physical monetary forms of payment methods to facilitate safety while simultaneously reducing the negative behavioral consequences that such alternative forms of payment methods have on impulsive purchases and unhealthy consumption. Hence, a crucial question is how scarcity, uncertainty, and pandemic-induced mitigation efforts impact customers' ability to manage the trade-off between easy credit terms and potentially harm-inducing purchases, and whether and in what form this behavior may persist after the pandemic.

⁹ <https://www.reuters.com/article/us-usa-economy-spending/coronavirus-depresses-u-s-customer-spending-in-april-idUSKBN2351X9>

Place In the 7Ps framework, distribution channels, market coverage, location, and accessibility are key elements of “Place” (Booms and Bitner 1981). Our discussion of a pandemic’s impact on Place focuses on traditional distribution strategy as well as the more recent migration to digital (Peterson et al. 1997), and its relationship with e-commerce strategy and omnichannel retailing.

Distribution strategy Pandemics disrupt firms’ external environment, creating potential supply chain interruptions and shopping behavior changes that result in demand contraction in some industries and demand expansion in others. As a result, firms will need to adapt their distribution strategy to these changes in their external environment (Achrol 1991).

Due to the macro forces of uncertainty, financial scarcity, and concern for life, customers are likely to shift their shopping behavior. Uncertainty may widen customers’ search behavior (Urbany et al. 1989), and when coupled with financial scarcity, customers may minimize and/or consolidate their shopping trips or seek new ways to gain access to products. Customers may avoid brick-and-mortar stores altogether due to social distancing concerns and mandated lockdowns, leading to a need for specialized product delivery services. Although many stores remained open during the Spanish flu, brick-and-mortar stores were temporarily closed during the SARS and COVID-19 pandemics and delivery options were emphasized across all three of these pandemics. A lockdown may require a re-evaluation of fulfilment, delivery, and product return strategies. Firms also need to understand changes in the shopper profile, such as new buyers in a household and new household behaviors, and the potential effect on distribution. It will be important for future research to understand the extent to which these shifts in distribution strategy remain critical during the recovery period and persistent after the pandemic.

The uncertainty fostered by a pandemic during the pre-pandemic or spark periods may also require a realignment of the manufacturing process and supply chain, necessitating a reevaluation of warehousing requirements, logistics partnerships, and auto-replenishment models to manage profitability.¹⁰ Firms with flexible manufacturing have higher performance when faced with higher environmental uncertainty (Swamidass and Newell 1987). The lives versus livelihoods tension may require manufacturing and assembly plants to temporarily close. Indeed, several Chinese manufacturing

plants shut down during SARS, and Hyundai temporarily suspended production in Korea due to the disruption of auto part supply from China during COVID-19 (Haren and Simchi-Levi 2020). While each one of these factors may separately disrupt supply chain and distribution, in combination, these factors may pose significant challenges to a firm’s distribution strategy.

E-commerce strategy With technological developments in the mid-90s, internet and e-commerce technologies dramatically reshaped the shopping landscape, as well as customers’ online browsing and shopping behaviors (Moe 2003). Due to pandemic-induced uncertainty, scarcity, policy-enforced mitigation approaches or anxiety stemming from safety concerns, customers naïve to online shopping for certain products may migrate to e-commerce. Notably, during the SARS pandemic, firms that offered e-commerce grew exponentially in China, where customers faced strict stay-at-home directives during the spark and spread periods.

Several pandemic-related macro forces accelerate the transition to e-commerce. First, the fear and uncertainty engendered by pandemics lead many customers to isolate as much as possible making convenience associated with home delivery and online shopping relevant and preferred (McClain 2020). For example, many customers in China were unwilling to leave their home for anything but the essentials during SARS, and online grocery sales saw a 32% monthly increase in the U.S. during the spark period for COVID-19.¹¹ Second, uncertainty associated with potential and multiple pandemic waves and the threat of infection may exacerbate the lives versus livelihoods dilemma, with online shopping emerging as a viable option that balances this conflict. Third, competition may intensify as demand shrinks, with firms striving to retain customers through loyalty programs, subscription models, promotions, and expanded product offerings. Competition may further escalate with customers using price engines and referral sites to find the best deals online and search for the most convenient alternatives.

Omnichannel retailing With increased digitalization in retailing, and the increasing prevalence of mobile phones, tablets, and social media, firms have turned to omnichannel strategies to offer a seamless integration of these new channels with online and offline retailing (Verhoef et al. 2015). During the spark and spread periods of a pandemic, customers staying at home may explore new digital channels and, as they learn to move efficiently between different mobile channels, their journey in the purchase process may become more digital.

¹⁰ During COVID-19’s pre-pandemic period, toilet paper shortages occurred across many countries as customers stockpiled in preparation for at-home quarantine (Lee in press). In the U.S., toilet paper sales spiked 734% versus prior year, and supply quickly depleted (Wieczner 2020), creating significant challenges for manufacturers who had previously faced consistent demand and lean supply chain management, causing them to explore new ways to recalibrate their manufacturing and distribution (Wieczner 2020).

¹¹ <https://www.digitalcommerce360.com/2020/04/29/coronavirus-drives-online-grocery-sales-to-5-3-billion-in-april-smashing-the-record-set-in-march/>

Retailers that are “customer centric” and deliver brand information directly to the customer are likely to elicit preference vis-à-vis those who require the customer to seek information offline. Consistent with this expectation, firms that have launched brand-specific mobile apps have achieved superior financial performance (Boyd et al. 2019). Critical research issues involve a better understanding of how pandemics shift the nature of customer–retailer engagement, and whether these behavioral changes will persist following the pandemic.

Promotion We next explore ways in which a pandemic impacts advertising and promotional strategy, two traditional elements of the ‘Promotion’ mix (Booms and Bitner 1981; Kotler 1999).

Advertising strategy During pandemics, the four macro forces will have multiple effects on the design and execution of advertising strategies. First, due to financial scarcity, customers learn to be more creative with their limited resources (Mehta and Zhu 2016) or will shift purchases toward certain products and away from others (Roux et al. 2015). Thus, firms will need to assess the extent of demand (in)elasticity for their products during the pandemic and make appropriate decisions regarding advertising messaging and expenditures. Second, if firms’ resources and capabilities shift due to economic contraction, so might their advertising budgets (McAlister et al. 2016; Srinivasan et al. 2011). As firms face heightened uncertainty and their own financial scarcity, spending is typically redirected toward immediate ways to fight the pandemic. Third, shifts in livelihoods and elevated uncertainty expose customers to new information sources, necessitating a reassessment of the media mix for more effective advertising targeting. For example, whereas newspaper circulation in the U.S. was at an all-time high during the Spanish flu to bring pandemic information to the masses (Tomes 2010), China’s government-controlled media initially prohibited reporting of the SARS warning,¹² and the primary medium during COVID-19 has been social media. Finally, given increased uncertainty during pandemics, firms will need to reassess their message content. A pandemic elicits an increase in anxiety about health and the economy (Ahorsu et al. 2020). As a result, customers’ receptivity to different messaging strategies (e.g., use of emotions like humor, fear, sadness, guilt, shame, etc.) may change, and advertising effectiveness will vary accordingly. Regulation too has changed, rendering some ads that touted products’ preventive properties (e.g., Bovril during the Spanish Flu,¹³ Lysol during the Hong Kong Flu¹⁴)

infeasible with today’s U.S. regulatory climate. Collectively, these issues elicit a host of important research questions for future research.

Promotional strategy Given increased scarcity and economic contraction, marketers will need to pivot their promotional strategies. Financial scarcity tends to drive customers to expand their consideration set (Hamilton et al. 2014), and they may be more willing to consider a wider set of offerings depending on the promotions offered. Faced with economic contraction, when customers cut their spending, effective promotional strategies emphasizing value for money may be more effective. Relational scarcity may further heighten customers’ proclivity to using digital, social, and mobile platforms for information and connection with others. During initial COVID-19 lockdowns, the usage of Facebook, Instagram, and WhatsApp increased 50% worldwide,¹⁵ suggesting that firms may benefit from pivoting their promotional efforts toward these platforms to better reach and engage with customers.

Public relations (PR) is an under-emphasized promotional element used routinely during crises and is considered to be more credible than advertising.¹⁶ With heightened uncertainty, firms can leverage PR to reassure customers about the firm’s stability and its support for them during a pandemic.¹⁷ In April 2020, Nike engaged in a multi-faceted campaign involving advertising and PR, titled “Play for the World” aimed at influencing targeted customers to stay at home.¹⁸ As part of the campaign, the firm donated \$15 million towards COVID-19 relief and created a digital platform and content library to maintain user engagement with the brand while staying at home. Nike further announced that staff unable to work due to store closures will receive paid time off. A key question is whether this type of PR-based reassurance is effective across different stages of a pandemic. Further, though in-store promotional efforts have a strong impact on sales (Blattberg et al. 1995), might a pandemic’s enduring uncertainty generate differential short-term and long-term effects? Indeed, some pandemics have lasted several months (e.g., Hong Kong Flu, SARS), whereas others have extended with several waves for more than a year (e.g., Spanish Flu, COVID-19). We invite research to explore how pandemic-driven sales promotions impact purchase behaviors in the short and the long term.

¹² <https://www.ncbi.nlm.nih.gov/books/NBK92479/>

¹³ <https://www.ft.com/content/4255c1c0-5ec8-11ea-8033-fa40a0d65a98>

¹⁴ <https://medium.com/@phillycatharsis/covid-19-advertising-progress-52-years-in-the-making-655dd2419aca>

¹⁵ <https://www.forbes.com/sites/ryanholmes/2020/04/24/is-covid-19-social-medias-levelling-up-moment/?sh=25a6449f6c60>

¹⁶ <https://www.forbes.com/sites/robertwynne/2014/07/08/the-real-difference-between-pr-and-advertising-credibility/?sh=50d33e4f2bb9>

¹⁷ <https://www.forbes.com/sites/forbesagencycouncil/2020/06/18/the-pandemic-has-made-pr-and-marketing-more-important-than-ever/?sh=14abc79e2b86>

¹⁸ <https://www.hubledigital.com/blog/-public-relations-campaigns-inspire-during-pandemic>

People In the 7Ps framework, the “People” dimension reflects personnel, commitment, incentives, interpersonal behavior, and engagement with customers (Booms and Bitner 1981). In this section, we explore the impacts of pandemics on these elements, focusing on a firm’s personal selling, customer relationship management, and customers’ online engagement.

Personal selling During the spark and spread periods of a pandemic, personal selling becomes vulnerable given the dramatic shifts from face-to-face and in-person interactions due to mitigation approaches like social distancing and business closures. In such a setting, field sales may be considered as “non-essential” work and may not meet the requirements for operations in an area where non-essential businesses have been closed. This is a potentially threatening shift for firms as in-person engagement tends to result in conversion rates higher than telesales or digital sales because it ostensibly allows a salesperson to better respond to the needs of the customer (Cummins et al. 2016). With social distancing, some personal selling business models (e.g., those adopted by Avon, Senegence, and Tupperware) which were facing pressures even before COVID-19 may be challenged further. Firms will need to ensure that their sales representatives’ health and safety are primary considerations in any modified strategic planning in response to pandemics. For instance, with a shift toward using technology in personal selling, a McKinsey study¹⁹ finds that close to 90% of B2B sales interactions have transitioned to videoconferencing, phone, and/or the web.

An important impact of a pandemic relates to the relationship-based focus of personal selling that involves the effective on-boarding of new business partners in the face of contracting demand. Clearly, internet capabilities and salesforce software technologies can enable firms to engage in personal selling within a new virtual world. However, a key component of personal selling is large-scale gatherings and celebrations of personal selling achievements that are unlikely to be in force during a pandemic. In such a situation, software tools that provide real-time data regarding personal sales numbers and relevant goal metrics enabling companies to recognize and reward sales employees’ achievements would become important. Therefore, new technology tools (e.g., virtual reality) for communications with customers might move to substitute personal selling.

Customer relationship management (CRM) Due to financial scarcity, uncertainty, and demand contraction, pandemics create a challenge for firms in terms of creating and maintaining

customer relationships. Further, when mitigation approaches involve closure of public places, social distancing, and remote working, firms will need to rely on their CRM practices more than ever. At such times, forward-looking CRM practices that focus on building connections with customers facing financial scarcity may be better positioned for a world after a pandemic. Some sectors (e.g., hotels, airlines) otherwise known for their state-of-the-art CRM practices may also need to adapt their approach to acquiring and developing customer relationships. In particular, for pandemics that involve strict social distancing directives, firms may turn to managing communications and relationships with their customers using automated CRM systems. Such platforms can provide multiple CRM-related benefits in pandemic times including automating, upgrading, and refining contact information which may otherwise be outdated, real time measurement of quality and quantity of relationships, and accessing data which enables a deeper analysis of customer sentiment. Given heightened scarcity, uncertainty, and anxiety during a pandemic, customers may come to expect more frequent and trust-building engagement which CRM has the potential to offer through increased empathic communication. In specific, the healthcare sector could emerge as an industry with transformative and integrated CRM practices. For example, Salesforce, a CRM leader, provides a response package targeted at emergency response teams and health care management teams,²⁰ offering many CRM tools free of charge that help distribute self-service information, safety, and testing protocols to a provider’s internal and external communities. Future research may explore effective customer acquisition and retention strategies during pandemics, whether customers are more likely to respond to monetary and/or social rewards, and whether loyalty programs are effective.

Online engagement When pandemics force social distancing and isolation, individuals are likely to shift further to online activities to minimize relational scarcity. In addition to social interactions through current or new platforms, social media can serve as important sources of information (Hamilton and Price 2019). During SARS, one of the strategies Alibaba pursued was to emphasize online interaction to elevate communication and team unity during quarantine. During COVID-19, customers’ online engagement increased by 57% overall in the U.S. Ironically, as customers turn to online engagement as a mechanism to mitigate relational scarcity, the increased screen time itself may lead to health issues including anxiety and depression (Song et al. 2020). Online interactions may also precipitate further uncertainty as they generate

¹⁹ <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/the-b2b-digital-inflection-point-how-sales-have-changed-during-covid-19#>

²⁰ <https://www.forbes.com/sites/quickerbetteertech/2020/04/01/on-crm-salesforce-zoho-and-others-step-up-to-fight-coronavirus-with-these-crm-tools/#59c9a8665781>

information myopia or a greater susceptibility to “fake news.” Pandemic-related misinformation may easily proliferate (whether through social media or through traditional channels of communication), leading to important research questions regarding the effects on customers’ mental state and engagement with firms and others.

Process “Process” involves procedures, mechanization, flow of activities and customer involvement (Booms and Bitner 1981). Historically, pandemic-led mitigation strategies have shifted the customer journey and disrupted a firm’s services strategy. Recently, with increasing prevalence and use of technology and AI, marketing technology systems have become integral to the customer journey (Grewal et al. 2020) and services strategy (Huang and Rust 2018). Consequently, in our exploration, we focus on potential changes to services strategy, the customer journey, and increased penetration of AI systems.

Services strategy Services often involve co-production by the customer and the service provider (Vargo and Lusch 2004). Due to the highly contagious nature of pandemics, customers minimize or terminate their interactions with many service providers, either due to policy-driven mitigation approaches or fear of contagion. This shift in customer behavior may result in avoidance of certain services considered less essential, such as restaurants, theaters, or auto repair. As expected, quarantine and social distancing measures temporarily closed many businesses and dampened in-person engagement during the Spanish flu, SARS, and COVID-19 pandemics, resulting in demand contraction for firms in several services sectors.²¹ The need for social distancing to mitigate contagion requires new mechanisms by which firms deliver services. Further, firms may need to suspend certain services and/or add new services (e.g., contactless check-in at hotels) during the spark and spread periods of a pandemic.

When pandemics require stricter mitigation approaches, firms may need to shift their services strategy to create stronger formalization. However, formalization tends to reduce employee autonomy and commitment to the organization (Hartline et al. 2000). Therefore, temporary shifts in a firm’s services strategy may have longer-term effects during the recovery period and after the pandemic. As firms consider changes to their services strategy, it is essential to consider rapid advances in technology that enable service innovation (Huang and Rust 2018). This raises important research questions regarding whether technology-enabled services can effectively replace human delivery, and whether this

transformation is transient or will have long-term implications for service delivery.

Customer journey A customer’s journey involves her/his flow of activities, experiences, and touchpoints with organizations across different purchase cycle stages (Lemon and Verhoef 2016). As customers engage in different experiences, they navigate a potentially complex array of decisions along a particular journey that can involve many touchpoints with several firms and individuals. Pandemics can differentially impact customers along these touchpoints, and both financial and essentials scarcity can contribute to this impact in specific product contexts (Das et al. 2018). Facing scarcity and lack of availability of specific products and services, customers may postpone purchases (Hamilton et al. 2014), a notion which should be examined, given heightened uncertainty in a pandemic, especially if scarcity may escalate.

Another area where pandemics will likely have a significant effect is on *collective* journeys. Accounting for the social nature of customer journeys, where other customers, peers, and employees serve as direct and indirect touchpoints that influence the customer experience, collective journeys reinforce the importance of social touchpoints (Thomas et al. 2020). However, relational scarcity may directly influence collective journeys that occur through a shared social experience. Specifically, families within the same household may be presented with different policy recommendations than families living separately, leading to a potential in-group versus out-group dynamic in the collective journey.

Marketing AI systems Over the past decade, firms have increasingly turned to AI in their marketing systems, and its presence and impacts are expected to increase (Davenport et al. 2020; Van Esch et al. 2020) for better customer engagement and superior operational efficiencies (Kumar et al. 2019; Overgoor et al. 2019). Although COVID-19 is the first pandemic to occur in an AI-infused environment, AI will likely be key in the process aspect of the marketing mix for future pandemics. Due to mitigation approaches during the spark and spread periods of a pandemic, shifts in certain industry sectors precipitate the need for marketing AI systems. In such a climate, firms delaying AI adoption are likely to face significant competitive disadvantage.

A critical issue is whether a pandemic accelerates adoption of AI more quickly in some industry sectors than in others. Along with this potential acceleration is the issue of privacy implications associated with AI. Indeed, privacy concerns are a double-edged sword. As a means to curtail the spread of COVID-19, mobile apps that track individuals who have tested positive or are recovering from the virus are prevalent in South Korea, where

²¹ We review effects of historical pandemics on various industries in a separate section below, which details effects for firms in different services sectors in specific.

privacy laws are minimal. While these mechanisms may be justified during a pandemic as an emergency measure, they could set a precedent with unanticipated future costs to firms, customers, and society.

Physical evidence “Physical evidence” involves the tangible, observable proof that points to an offering’s quality (Booms and Bitner 1981). A display of diplomas or certificates of excellence in a tax accountant’s office might reassure a client of the accountant’s expertise, and a well-designed and organized environment may suggest competence, efficiency, care, and quality (Bitner 1990). During a pandemic, physical evidence needs to signal not only the quality of a product or service, but also the care and attention to safety. Therefore, we focus on the physical environment and packaging, both of which provide tangible, observable physical evidence of quality and safety when customers interface with services and products.

Physical environment Appearance and ambience (e.g., music) of the physical environment influence perceptions of service quality (e.g., Grewal et al. 2003). Given the perceived trade-off between lives and livelihoods, during the spark and spread periods of a pandemic, retailers and firms need to align their environment with the market environment and customers’ changing expectations to cue hygiene and safety. These shifts, however, should be readily observable for retailers and firms to successfully influence quality and safety perceptions. For example, mitigation approaches that require individuals to wear face masks, a central lives versus livelihood issue during the Spanish flu pandemic, may signal a firm’s commitment to the health and well-being of its employees and customers. However, evidence indicating that this mandate is not consistently enforced may be perceived as a service failure that lies within the firm’s control, leading to customer dissatisfaction with the experience (Bitner 1990).

Other physical environment features may further enhance perceptions of quality and safety both during and post-pandemic. For example, modifying the seating layout in a theatre or restaurant, or use of additional protective shields, reinforces a firm’s commitment to health and safety during the spark and spread periods. Further, protective shields installed in the check-out area mitigate contagion and provide tangible evidence of the firm’s enhanced care of its employees and customers. During COVID-19, CVS Pharmacy required its pharmacists to wear a face shield over a face mask when administering flu shots to customers. By observing such physical changes and safety protocols, customers may be more likely to patronize the firm while developing perceptions of safety and customer care.

Packaging Offering tangible, physical evidence, a product’s packaging (whether purchased in person or online) can cue quality. Although packaging has the potential to educate, stimulate excitement, and elevate perceptions of quality (Moreau 2020), customers are likely to seek two specific benefits during a pandemic: safety and hygiene. It is well-known that packaging can be a source of contagion (Käferstein et al. 1997). Hence, given the trade-off between lives versus livelihoods during the pandemic’s spark and spread periods, packaging may need to shift to be responsive to safety needs while delivering the product’s core benefit(s) without damaging the product. To help attenuate uncertainty during SARS, the World Health Organization provided a detailed set of guidelines on product packaging in view of virus transmission.²² Some packaging may need minor alterations, such as provision of an additional, reassuring layer of transparent plastic wrapping to signal enhanced safety, whereas other packaging may require more significant changes. Future research could explore the influence of an additional layer of transparent plastic wrapping on fear of contagion or long-term associations between the product and the pandemic. Given economic contraction, companies may also cut packaging costs, though it remains to be seen whether this cost-cutting strategy affects quality perceptions. Importantly, new forms of packaging may emerge during a pandemic that reinforce quality and safety and become predominant in the long term.

Industry sectors

In this section, we bring our attention to the interplay between pandemics and specific industries that they affect. The severity of a pandemic directly influences not only which industry sectors will be most affected but also the degree to which there may be long-lasting effects beyond the pandemic. Moreover, as technology becomes more prevalent and acceptable in the workforce and everyday life, a pandemic may permanently change an industry sector or may open the door for new sectors to emerge. Due to social distancing, lockdowns, and quarantines, human interactions are minimized during pandemics rendering some service industries more vulnerable than others. Consequently, we focus on service industry sectors that have been significantly impacted by pandemics in the 20th and 21st centuries.

Healthcare Clearly, pandemics significantly impact the healthcare sector, increasing demand for medical services and spending, which can be overwhelming with more severe pandemics. In the spark and spread periods, a surge in demand for medical services and increased workload for healthcare workers (Verikios et al. 2011) has the potential to impact several marketing factors. First, the lives versus livelihoods

²² https://www.who.int/csr/sars/biosafety2003_04_25/en/

tension and high uncertainty may stimulate healthcare innovations. With the Hong Kong Flu, hospitalization rates exceeded 150% of capacity (Saunders-Hastings and Krewski 2016) and COVID-19 triggered makeshift or “safety-net” hospitals in many cities in an attempt to handle the surge in hospital bed demand.²³ COVID-19 also brought about innovations with medical care (e.g., robot nurses), medical devices (e.g., portable ventilators), and other devices (e.g., smart helmets) to mitigate contagion during the pandemic (Harris et al. 2020; Luo and Galasso 2020). Second, healthcare may see a temporary shift in the customer journey, and a potential permanent shift subsequently. Given that fear and uncertainty may prevent customers from seeking non-pandemic-related medical attention, especially during the spark and spread periods, use of AI in delivering healthcare will increase and may result in temporary or permanent changes. For example, mobile apps can ensure patients remain in contact with a doctor for routine medical questions, gain easier access to necessary medications, and seek medical attention for issues unrelated to the pandemic. These customizations shift the potential touchpoints between a patient and healthcare provider in the customer’s journey.

Additional challenges for marketing exist during the recovery period. A key challenge is widespread vaccine distribution to speed the recovery period. Vaccines for the Spanish Flu were developed but only distributed locally where they were developed.²⁴ Vaccines for COVID-19 have been developed worldwide yet face mistrust, posing a hurdle to widespread distribution. The European Union originally dismissed COVID-19 vaccines from Russia and China as propaganda and fell behind other developed countries in terms of vaccine distribution.²⁵ In the U.S., Black and Latino Americans have been hesitant to become vaccinated due to distrust rooted in historical government experimentations on these groups.²⁶ Therefore, marketing efforts need to focus not only on communities most at risk but also on those most uncertain and therefore most resistant. Finally, with vaccine distribution, the classic profit maximization model in the healthcare sector may shift as pharmaceutical companies assess their pricing practices.

Education Most pandemics, including the Spanish Flu, Asian Flu, SARS, and COVID-19, have involved short-term school closure and impacted the education sector (Keogh-Brown et al. 2010; Saunders-Hastings and Krewski 2016). School closures directly impact the school systems and teachers,

and indirectly impact working parents required to stay home with their children. During the Spanish Flu in 1918, school closures had less of an indirect impact because women made up a much smaller proportion of the labor force (Correia et al. 2020). Since 1970, with more women in the workforce, dual-career households and single-parent households face greater challenges due to school closures, potentially elevating financial scarcity as well as the lives versus livelihoods tension. When schools closed in Taiwan during SARS, 18% of households suffered a five days’ average wage loss (Begley 2013).

Although school systems closed during different stages of the COVID-19 pandemic, most were able to turn to existing technology and implement at-home schooling with online classrooms (e.g., using Zoom, Microsoft Teams, or Google Classroom). This shift to online learning disadvantaged many low income and rural students who lacked computers and/or internet access, generating an unhealthy divide in educational outcomes (e.g., Jargon 2020). However, even before COVID-19, the market for online education was expected to reach US\$350 billion by 2025, and benefits associated with online learning may mean permanent changes in online education.²⁷ For marketing, this presents important challenges. When individuals stay at home with children, the resulting financial scarcity will shift customer purchase behavior and will likely require firms to revisit their pricing, promotions, and online engagement strategies. In particular, with elevated online learning engagement, marketers will need to find ways to break through the additional online clutter in order to engage with new and existing customers. Moreover, parents who have the ability to work remotely may find fewer opportunities for career advancement and an erosion of workplace trust.²⁸

Retail Pandemics have historically devastated the retail industry. The Spanish Flu seriously hurt retail (Correia et al. 2020) and SARS produced a significant decline in the sector in Asia as well as in parts of Europe (Keogh-Brown et al. 2010). With COVID-19, which has accelerated the already underway retail apocalypse, surviving retailers are learning that their marketing and operations may need to transition rapidly to e-commerce, omnichannel practices, and new business model innovations (Adhi et al. 2020). During a pandemic’s spark and spread periods, global retailers (e.g., Amazon, Carrefour, Walmart) will need to carefully plan their transformation as the severity of a virus and its mitigation approaches vary from country to country. For pandemics that are associated with long-term uncertainty, retailers will need to manage the unpredictability in long-term demand and the related workforce challenges. Retailers that have already made transitions to e-

²³ <https://www.wsj.com/articles/coronavirus-takes-financial-toll-on-new-york-citys-safety-net-hospitals-11591904490>

²⁴ <https://www.historyofvaccines.org/content/blog/vaccine-development-spanish-flu>

²⁵ <https://www.reuters.com/article/us-health-coronavirus-eu-vaccines-insigh/unthinkable-eu-considers-getting-a-vaccine-boost-from-russias-sputnik-idUSKBN2B70KO>

²⁶ <https://www.brookings.edu/blog/fixgov/2021/02/02/whats-the-hold-up-why-more-vaccines-havent-been-administered/>

²⁷ <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/>

²⁸ <https://www.bbc.com/worklife/article/20210315-why-remote-work-has-eroded-trust-among-colleagues>

commerce and omnichannel designs will be poised to more swiftly adapt to new needs and have a better chance for survival. Nevertheless, a pandemic has the potential to shift the market landscape, altering not only customer behavior but also the regulatory, political, and competitive nature in the industry. Thus, some retail firms may need a completely new lens to pursue new business model innovations in response to the short-term and long-term shifts in scarcity, uncertainty, and economic contraction. Further research on retail transformation in response to the uncertain and changing nature of the marketplace across geographic boundaries will help global retailers transition more smoothly given that the macro and micro factors vary across geographies.

Hospitality Three segments comprise the hospitality industry: food and beverage, lodging, and recreation and entertainment. Due to high levels of contagion, high uncertainty, and the lives versus livelihoods tension, pandemics can have a damaging effect on each of these three segments. During the Spanish Flu, many U.S. cities closed saloons, theaters, and sports facilities to contain the virus. During SARS, hotels and restaurants “took a beating” (Begley 2013; see also Keogh-Brown and Smith 2008). In Taiwan, for example, hotel occupancy rates fell by 30%, and the restaurant segment declined by 13.1% (Chou et al. 2004). The COVID-19 pandemic “wreaked havoc” on the food and beverage industry, with restaurants learning to adapt quickly out of necessity to survive.²⁹

With heightened long-term uncertainty and mitigation approaches that prohibit large, in-person gatherings during the spark and spread periods, economic contraction will affect each of these three hospitality segments. Moreover, it will enhance the lives versus livelihoods tension as customers seek to return to normality and firms seek to increase their patronage. Firms will need to alter their positioning to reinforce a consistent message of safety while reconsidering their pricing strategy. For instance, risk mitigation attributes may be more important in customers’ utility function, leading to hotels needing to offer lower prices and unconditional refund policies. Although firms will need to modify their advertising strategies to increase demand, they will also need to adapt to customers’ changing needs during the spark and spread periods. Health-related information pertaining to the safety of food delivery will also be essential. For restaurants, this may also mean a business model shift that not only relies more on technology (e.g., QR code-based menus) but also incorporates a renewed stress on health and safety even post-recovery. Some of the changes in the hospitality sector may be abiding, evidenced by hotels’ move to contact-free automation through mobile check-ins, room keys on phones, and voice-activated room controls.

Tourism and transportation Pandemics significantly impact tourism and transportation, restricting the movement of people (i.e., travel and tourism) and of products (e.g., trucking, railroads, shipping). Specific to airline travel, during SARS, Asian and North American airlines lost \$6 billion and \$1 billion in revenues, respectively (Begley 2013). In April 2020, during the early spark period of COVID-19, flights in Europe and the U.S. declined by nearly 85% and 95%, respectively.

Although the travel and tourism industry has been transforming since the onset of digital search, new pandemic-led patterns may emerge. Tourists may be increasingly prevention-focused in their pursuit of travel and tourism, which may produce two customer segments—those who avoid travel and those who are willing to travel but with increased demand for travel insurance. Considering the complex network of small and medium enterprises that delivers tourism services, a country’s government may get more involved in promoting tourism as it enters the recovery period. Testing protocols at various points of entry (e.g., in airports, country borders) will also influence tourism during the spread period and into the recovery period. For instance, during the height of COVID-19’s spread period, some speculated whether a vaccination passport would be needed for future travel and tourism activities. If customers temporarily refrain from tourism during a pandemic’s spark and spread periods, it will be important to ascertain whether AI can offer a substitute for such experiences (e.g., through augmented reality), and whether this has a long-term effect on customer journeys. Industry experts indicate a push toward a ‘contactless journey’ in the future, as passengers move through terminals and checkpoints with facial recognition (Baddeley 2020).

For the transportation of products, the effect on shipping and courier services has varied across pandemics. SARS had a negative effect on FedEx due to closed airports and fewer customers (Begley 2013). In contrast, during COVID-19, many package-delivery firms, including FedEx, saw a spike in shipping as e-commerce became more common and firms adjusted their shipping times and fees.³⁰ With the prevalence of e-commerce, firms can adapt their positioning, pricing, and promotional strategies to align with customers’ financial scarcity, uncertainty, and fear of contagion. As package delivery increases during a pandemic, the length of the spread period may have lasting effects on customers’ shopping behavior.

Summary and conclusion

Being global in nature, pandemics are distinct from other environmental crises that customers and firms may face since they are characterized by four defining macro forces operating

²⁹ <https://www.foodsafetynews.com/2021/02/coronavirus-will-have-lasting-impact-on-restaurant-industry/>

³⁰ <https://greenmountaintechnology.com/learn/articles/should-your-parcel-network-worry-about-coronavirus/>

concomitantly, namely *lives versus livelihoods tension*, *economic contraction*, *scarcity*, and *uncertainty*. Taking a broad view of pandemics in general, we articulate a conceptual framework that identifies these forces and their wide-ranging implications for marketing through the 7P framework. A key objective of this framework is to provide guidelines to marketers to more effectively prepare, anticipate, and respond to future pandemics by managing the 7Ps and understanding their differential impact across industry sectors. We also focus on service industries that are most likely to be impacted by pandemics but are also ripe for digital transformation. We conjecture that these insights could help managers, customers, and policy makers to deal with future pandemics more effectively. Insights from this research can also serve a pedagogical purpose to stimulate a deeper discussion of the marketing challenges facing companies during pandemics.

A central characteristic of pandemics which distinguishes them from other crises is the macro force related to the trade-off between lives and livelihoods. The intended versus unintended consequences of policies and interventions designed to confront this trade-off are unknown. In particular, trading lives versus livelihoods does not explicitly recognize that a focus on saving lives could result in undesirable outcomes, such a compromise of people's livelihoods that may inadvertently lead to costing even more lives (e.g., due to suicides, reduced/delayed access to critical healthcare, long-term health consequences of poverty/scarcity). Examining this tension between lives and livelihoods more deeply has the potential to offer important marketing and public policy implications.

A critical outcome of our discussion is reflected in the 7Ps-related and industry-specific unanswered research questions that can help our understanding, assessment, and management of, as well as our response to, the confusing complexity of a pandemic-driven landscape. We hope that these research questions will stimulate additional inquiry pertaining to the effects of pandemics on marketing strategies, tactics, and outcomes, which can accomplish the objectives of extending the marketing literature and generating useful insights for multiple audiences.

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