



RESEARCH NOTE

# Tracing the connections between international business and communicable diseases

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**Abstract**

We posit that international business and the emergence and spread of communicable diseases are intrinsically connected. To support our arguments, we first start with a historical timeline that traces the connections between international business and communicable diseases back to the sixth century. Second, following the epidemiology of communicable diseases, we identify two crucial transitions related to international business: the emergence of epidemics within a host country and the shift from epidemics to global pandemics. Third, we highlight international business contextual factors (host country regulatory quality, urbanization, trade barriers, global migration) and multinationals' activities (foreign direct investment, corporate political activity, global supply chain management, international travel) that could accelerate each transition. Finally, building on public health insights, we suggest research implications for business scholars on how to integrate human health challenges into their studies and practical implications for global managers on how to help prevent the emergence and spread of communicable diseases.

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## INTRODUCTION

It is remarkable that the tiny SARS-CoV-2 virus – severe acute respiratory syndrome coronavirus – took such an enormous toll on the human race. The lack of preparedness of society and business came with a high price tag. Furthermore, given dissimilar social conditions and political institutions promoting human health, the burden of COVID-19, the disease caused by the virus, affected nations very differently (Bapuji, de Bakker, Brown, Higgins, Rehbein, & Spicer, 2020; Bapuji, Patel, Ertug, & Allen, 2020). Yet, despite the latent linkage between international business and health challenges, only recently have business scholars started to focus their attention on this nexus (Ahen, 2019; Montiel, Cuervo-Cazurra, Park, Antolín-López, & Husted, 2021). In fact, there is limited literature in international business on the topic, despite growing scholarship in the field of public health,<sup>1</sup> which traces the

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origins and spread of many communicable diseases to processes and activities related to international business (Baker et al., 2021; Harrison, 2012; King, Peckham, Waage, Brownlie, & Woolhouse, 2006; Labonté, Blouin, & Forman, 2009; Morse, Mazet, Woolhouse, Parrish, Carroll, & Karesh, 2012; Rohr, Barrett, Civitello, Craft, Delius, & DeLeo, 2019; Wilson, 2003; Wu, Perrings, Kinzig, Collins, Minter, & Daszak, 2017). In the public health literature, there is an increasing understanding that communicable diseases have environmental origins driven by social and economic pressures with roots in globalization (Frenk, Gómez-Dantés, & Moon, 2014; Labonté, Mohindra, & Schrecker, 2011; Wu et al., 2017), of which multinationals are one of the principal agents (Barnett & Whiteside, 2002; Saker, Lee, Cannito, Gilmore, & Campbell-Lendrum, 2004).

Although insightful, public health research tends to over-emphasize the negative aspects of large corporations in global health, while overlooking the mechanisms through which the contextual factors of international business, as well as the operations and strategies of multinationals, are connected to health outcomes. The absence of an international business perspective in research on the international business–communicable disease nexus has meant that public health scholarship has proposed suggestions for public policy without much regard to business policy. Furthermore, public health scholars perceive international business research as too accommodating of the role of many multinationals in extracting rents from host countries (Baum & Anaf, 2015; Freudenberg, 2014). That said, international business scholars need to give public health scholars credit, since they provide different and fresh perspectives on the connections between international business and communicable diseases worldwide.

In this piece, we take a glimpse at recent business and public health research examining the role of international business as an agent of communicable disease transmission. We argue that international business often fosters the emergence and spread of communicable diseases across the globe. To support our argument, we provide historical and contemporary evidence linking the two. We begin by documenting the historical connections between international business and communicable diseases. Then, we organize contemporary evidence in terms of four contextual factors of international business (host-country regulatory quality, urbanization, trade barriers, global migration) and four

activities of multinationals (foreign direct investment, corporate political activity, global supply chain management, international travel) that may facilitate the emergence of a communicable-disease epidemic and its progression into a pandemic. Then, we build on public health insights to offer a research agenda that connects international business research with communicable diseases. Finally, we conclude with practical implications for how managers of multinationals can contribute to preventing the emergence and spread of communicable-disease epidemics and pandemics, and to tackling other health challenges.

### **BACKGROUND AND A BRIEF HISTORY OF INTERNATIONAL BUSINESS AND COMMUNICABLE DISEASES**

From the first COVID-19 patient in Wuhan, China, in December 2019, through the subsequent outbreak in the region until January 2022, there were more than 374 million recorded cases and 5.6 million recorded deaths from COVID-19 around the world (Johns Hopkins University & Medicine, 2022). Given globalization and urbanization, Wuhan provided the conditions for a perfect storm leading to the emergence and spread of COVID-19. With over ten million people (United Nations, 2018), the city's high population density contributed to the initial appearance of the virus. Increasing connectedness between Wuhan and the rest of the world facilitated the dissemination of the virus. Wuhan's industrial and transport hub status attracted global travel and commercial activities. For instance, Wuhan Tianhe International Airport offered flights to 101 international destinations in 17 countries as of May 2020 (FlightConnections, 2020). The city also achieved economic growth mainly based on providing support for multinationals, such that 230 of the Fortune Global 500 firms had invested in the city as of 2020 (BBC News, 2020). To give just one example, more than 100 French multinationals actively engaged in Wuhan's economic growth through foreign direct investment – including major automakers like Groupe PSA (Hu & Zhou, 2019). Thus, it becomes critical for international business scholars to better understand the mechanisms through which international business affects the emergence and spread of communicable diseases and to help multinationals prepare for future pandemics.

At this point, a definition of communicable disease is warranted. Communicable diseases are



those diseases “caused by microorganisms such as bacteria, viruses, parasites and fungi that can be spread, directly or indirectly, from one person to another” (World Health Organization, 2020a). Of particular interest are emerging infectious diseases, which are “infections that have newly appeared in a population or have existed, but are rapidly increasing in incidence or geographic range” (Morse, 1995: 7). The United States Centers for Disease Control and Prevention (CDC) use a 20-year period to distinguish emerging infectious diseases from other communicable diseases (CDC, 2018). Recent examples of emerging infectious diseases include ebola, HIV/AIDS, influenza, Lyme disease, Zika virus, and SARS coronavirus. According to the CDC (2021), three out of every four new or emerging infectious diseases are zoonoses – diseases or infections that can be transmitted from animals to humans. Emerging infectious diseases are especially likely to appear under certain environmental conditions, such as climate change and deforestation (Daszak, Cunningham, & Hyatt, 2000; Jones, Patel, Levy, Storeygard, Balk, & Gittleman, 2008) and socio-economic and political conditions, including poverty, social inequality, the incapacity of political instruments, and international travel and commerce (Morens, Folkers, & Fauci, 2004).

Interestingly, the link between international business and trade to the spread of communicable disease is not recent. A sense of the historical relationship between international business and some relevant past pandemics is provided in Table 1. As early as the year 541, the earliest form of international business – trade – was implicated in the spread of communicable diseases. In this case, the disease was the same bubonic plague (*Yersinia pestis*) that was to wreak havoc in Europe 800 years later (Harrison, 2012; Huremović, 2019; Piret & Boivin, 2021). On that later occasion, one-third of Europe’s population died. Most explanations point to China as the source of the plague, which spread from there to the Black Sea. The specific path is unknown, but trade routes along the Silk Road are likely. From the Black Sea, the spread of the plague to Europe can be traced more precisely. It appears to have traveled to seaports and then along major rivers like the Rhine and Loire (Harrison, 2012; Huremović, 2019; Piret & Boivin, 2021).

### Transatlantic Encounters and Trade Intensification

Clearly, international trade routes can have unintended consequences. One of the unintended

consequences of the Spanish conquest of the Americas was its role in the spread of smallpox. Some indigenous peoples saw their populations reduced by 90% or more as a result. Although it would be an exaggeration to call the Spanish conquest a form of international business, once smallpox arrived in the Western hemisphere, it spread along the trade routes of the indigenous peoples south to Bolivia and north to territories which are now part of the United States (Harrison, 2012). The earliest flu pandemics also spread along trade routes; the 1580 pandemic appears to be the first that can be attributed to the flu with reasonable certainty (Taubenberger & Morens, 2009). It began in Asia and spread to Europe along trade routes (Tognotti, 2009). In Asia, it was known as the “wind illness” because it spread with such rapidity (Tognotti, 2009). It reached Africa and may even have arrived in Chile in 1617 by way of Spain (Taubenberger & Morens, 2009).

Yellow fever arrived in the Western hemisphere from Africa through mosquitoes on slave ships, considered a form of international trade, although one of its darkest forms. The spread of yellow fever along the Eastern coastal ports in the 1690s – Boston, Philadelphia, Charleston – was facilitated in the southeast by deforestation to make way for the sugar plantations, which then exported their product to European capitals. Deforestation eliminated the habitats of animals that normally would have fed on the mosquitos and other insects which carried the yellow fever virus (Harrison, 2012).

### The Twentieth Century and Beyond

The pneumonic plague of Manchuria of 1910–1911 was derived from the same *Yersinia pestis* which caused the bubonic plague. The main difference between the two is where they are located in the human body, with the pneumonic plague affecting the lungs and the bubonic plague, the lymphatic system. The Manchurian plague originated with the local trade in marmot furs and affected commerce with China, Russia, and Japan. Russia and China eventually banned Manchurian fur in 1911. Sixty thousand Manchurians lost their lives and lost trade amounted to roughly US\$100 million (Harrison, 2012; Piret & Boivin, 2021). A remarkable side effect of the plague was the unusual international collaboration between Chinese and Russian physicians to fight it (Gamsa, 2006).

Although it was primarily the movement of troops and armor across the oceans during World War I that facilitated its spread (Flecknoe, Charles

**Table 1** A historical timeline of international business and communicable diseases

Dates	Epidemics/pandemics	Connections to international business
541–543 1334–1400	Plague of Justinian Black Death	Trade implicated in the spread of plague via fleas associated with wild rodents Plausibly began in China and spread to Black Sea via overland trade routes. Spread from Black Sea to major ports and then inland via maritime routes and major rivers
1518–1528	Smallpox	The Spanish conquistadores brought smallpox to the Americas, which was then spread by native peoples along their own trade routes south through Panama on to Bolivia and north to territory now part of the United States
1580 Mid- to late-17th century	Flu pandemic Yellow fever	Spread from Asia to Europe via trade routes. Possibly arrived in Chile in 1617 via Spain Mosquitos on African slave ships carried yellow fever to the Americas. Yellow fever was amplified in Eastern US by deforestation linked to the international sugar trade
1910–1911	Manchurian plague	Russia and China banned the tarbagan fur trade in 1911. Losses estimated to approach US\$100 million
1918–1919	Spanish flu	Although it is difficult to separate the role of the war from international trade in the spread of the Spanish flu, the protectionist reaction to the Spanish flu had disastrous consequences on trade
2002–2003	SARS	Air travel from Hong to the rest of the world was severely affected. Hong Kong was forced to withdraw from an international trade fair in Switzerland. Tourism to Asia dropped by 10%. Estimated potential losses were estimated at US\$1.8 billion
2019–present	COVID-19	Emerged at the confluence of several factors related to international business, such as deforestation, and spread by air travel and international commerce. By the end of 2021, it had caused more than 5 million deaths and a cost of at least US\$28 trillion to the world economy

Wakefield, & Simmons, 2018), the Spanish flu provides a classic case of responding to pandemics with increased tariffs and non-tariff barriers which impede international commerce (Boberg-Fazlic, Lampe, Pedersen, & Sharp, 2021). Isolating the effect of the war on tariffs, Boberg-Fazlic et al. (2021) found that a one standard deviation increase in excess deaths during the Spanish flu epidemic resulted in an increase of one-third of a standard deviation in tariffs. So, although the Spanish flu was mainly spread by the war, the ensuing pandemic clearly had substantial implications for international business by spurring protectionist trade policies.

The SARS epidemic originated in the Chinese province of Guangdong in November 2002, and quickly spread to Hong Kong in February 2003 (Cherry & Krogstad, 2004). Bats and palm civets were the transmission vectors (Wang, Shi, Zhang, Field, Daszak, & Eaton, 2006). The consequences for Hong Kong and the nearby province were severe. Travel to Hong Kong was significantly curtailed (The & Rubin, 2009), and the region was forced to pull out of an international trade fair for watches in Switzerland. The cost of the ban on Hong Kong's participation was estimated to be US\$1.8 billion (Harrison, 2012). Overall, international travel and tourism to Asia dropped by around 10% (Harrison, 2012).

The story of the current COVID-19 pandemic is still unfolding. Its origins in China are being studied, but likely point to zoonosis from bats to a human population near Wuhan. There seems to be a cocktail of influences behind this spread, including international business connections, international travel, and deforestation (McMahon, 2020). The economic cost of the COVID-19 virus is estimated to have reached US\$16 trillion in the United States (Cutler & Summers, 2020) and at least US\$28 trillion around the world (Gopinath, 2020). Yet, despite the cost of COVID-19, World Health Organization Director-General Dr. Tedros Adhanom Ghebreyesus has warned that COVID-19 will not be the last pandemic, nor the most virulent one (World Health Organization, 2020b).

This brief review shows that international business in various forms has been implicated in epidemics and pandemics around the world over the last 1,500 years. Some common themes bind these together. In most cases, trade is a common factor driving the spread of diseases. Vectors of contagion may be the human beings that trade or the animals, such as fleas or mosquitos, that travel with them. As a whole, international business is implicated, not just in terms of trade but also via tourism and business travel, as well as indirectly through deforestation to clear land for products manufactured or grown for international sales in an



increasingly globalized world. Finally, both yesterday and today, governments worldwide have responded to pandemics with quarantines, lockdowns, and border controls (Piret & Boivin, 2021). Thus, international business is not only deeply involved in the spread of pathogens but also affected by government responses through pandemic controls, especially trade barriers.

### **INTERNATIONAL BUSINESS AND COMMUNICABLE DISEASES TODAY**

A recent *JIBS* Perspective urged international business scholars to research the link between grand challenges and international business via an interdisciplinary approach (Buckley, Doh, & Benischke, 2017). Yet, despite a potential link between international business activities and communicable diseases, we rarely observe international business studies addressing this particular relationship, other than studies examining occupational health and safety (Arnold & Bowie, 2003, 2007; Collings, Scullion, & Morley, 2007; Himmelberger & Brown, 1995) or other issues where health directly affects the financial bottom line, including accessibility to medicines and healthcare services in the global pharmaceutical industry (Flanagan & Whiteman, 2007; Ghauri & Rao, 2009; Leisinger, 2005, 2009), multinationals' activities designed to enhance local community health in poor host countries (Gifford & Kestler, 2008; Gold, Hahn, & Seuring, 2013; Van Cranenburgh & Arenas, 2014), the role of food and tobacco multinationals in addressing noncommunicable diseases (Gertner & Rifkin, 2018; Mukherjee & Ekanayake, 2009; Palazzo & Richter, 2005; Tempels, Blok, & Verweij, 2020), and product safety assurance in global value chains (Bapuji & Beamish, 2019; Scruggs & Van Buren, 2016). Coincidentally, public health researchers have already engaged in these conversations, mostly questioning multinationals' role in global health from a critical perspective (Baum, Sanders, Fisher, Anaf, Freudenberg, & Friel, 2016; Baum & Anaf, 2015; Freudenberg, 2014; Kadandale, Marten, & Smith, 2019; Kickbusch, Allen, & Franz, 2016; Moodie, Stuckler, Monteiro, Sheron, Neal, & Thamarangsi, 2013; Müller et al., 2021; Stuckler, McKee, Ebrahim, & Basu, 2012). It is time to start a consistent international business-health research agenda that builds upon existing literature, theories, and models from international business and public health.

To build bridges between international business and public health research, and to suggest an

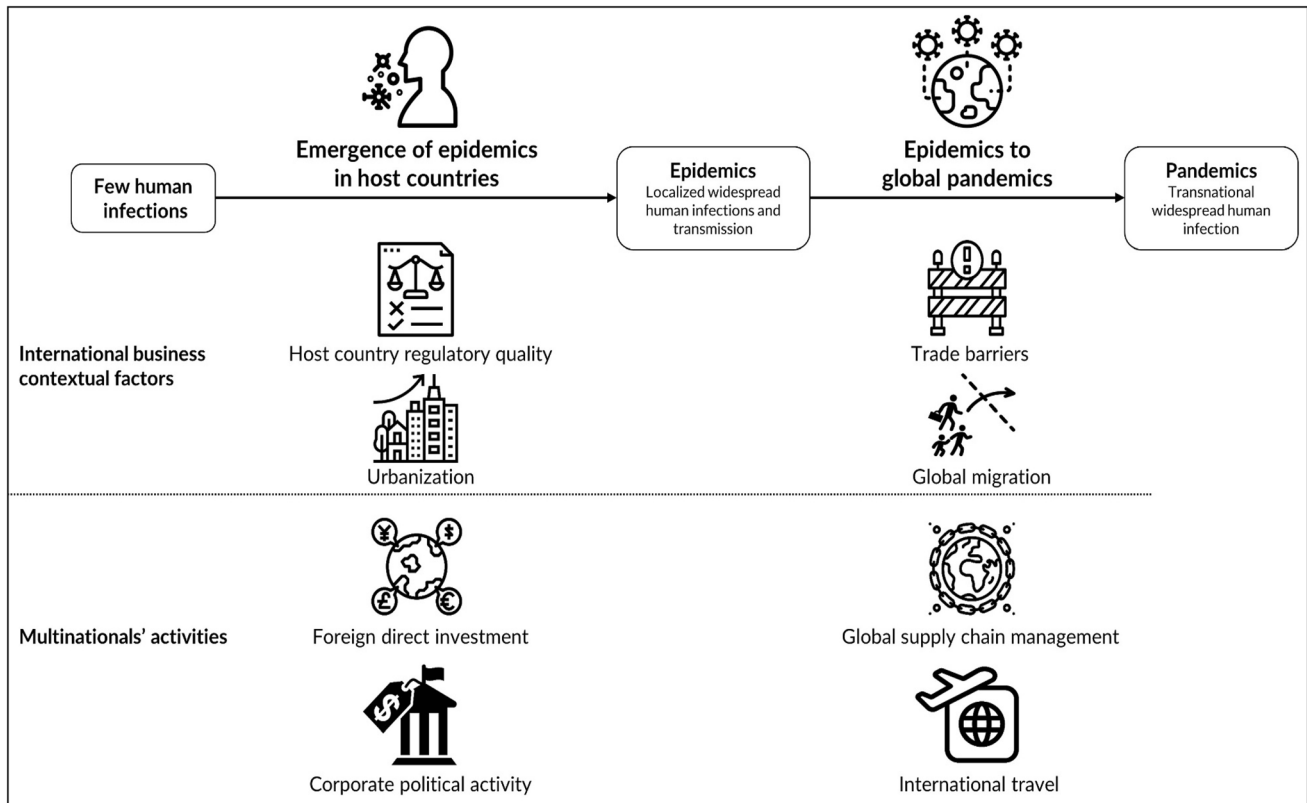
avenue for future research and practice, we combine insights from both fields to clarify the connections between international business and communicable diseases as a critical health grand challenge. Hence, we propose an integrative framework in Figure 1 that draws from existing international business and public health concepts. From public health, we build on the phases of a pandemic (WHO Global Influenza Programme & World Health Organization, 2009) to display a communicable-disease pandemic process, starting with few human infections, followed by an epidemic and its progression to a pandemic. Then, we highlight international business contextual factors and multinationals' activities that can contribute to the development of these transitions.

### **The Emergence of Epidemics within a Host Country**

An epidemic refers to “the occurrence in a community or a region of cases of an illness, specific health-related behavior or other health-related events clearly in excess of normal expectancy” (World Health Organization, 2007: v). Although epidemics – and pandemics – can apply to noncommunicable diseases such as diabetes, most cancers, and chronic respiratory diseases (Allen, 2017), we specifically focus on communicable diseases; an epidemic is likely to emerge when the spread of communicable diseases develops from a few human infections to widespread localized infections (O'Brien, 2013). We start by highlighting two international business contextual factors that can contribute to the emergence of an epidemic within a host country – host-country regulatory quality and urbanization. We then look at two activities undertaken by multinationals that can foster the emergence of an epidemic – foreign direct investment and corporate political activity. We consider these four dimensions closely connected to dynamics of international business and multinationals' activities in the host country where they operate, thereby promoting the emergence of a communicable diseases epidemic.

#### **Host country regulatory quality**

A host country's regulatory quality affects and can be affected by multinationals' behavior (Doh, Rodrigues, Saka-Helmhout, & Makhija, 2017; Meyer, 2004; Xu, Hitt, Brock, Pisano, & Huang, 2021). In countries with low regulatory quality where local regulations are lax or not enforced, multinationals may engage in practices that create



**Figure 1** The connections between international business and communicable diseases. *Note* The use of the ten icons is permitted by the Noun Project under a Creative Commons license.

favorable conditions for the emergence of a communicable-disease epidemic. We explain this relationship by focusing on three arenas of regulation: public health, nutrition, and environmental regulations.

First, poor public health regulations of the host country – regarding communicable disease prevention, detection, and containment – have the potential to facilitate the emergence of epidemics. Examples of such regulations include mask-wearing, infectious disease testing, contact tracing, and quarantine policies designed to prevent and control the spread of communicable diseases within the country (Escandón, Rasmussen, Bogoch, Murray, Escandón, Popescu, & Kindrachuk, 2021). Multinationals could take advantage of these regulatory voids to reduce operational costs by not strictly implementing communicable disease prevention measures in their host-country operations, thus contributing to the emergence of epidemics. Second, weak nutrition regulations can fail to protect a host-country’s citizens from unhealthy food commodities and allow multinationals to tap into processing, marketing, and retailing of such

commodities (de Lacy-Vawdon & Livingstone, 2020; Labonté et al., 2011). When the population lacks access to healthy dietary products or adequate nutritional information, they are more likely to suffer from nutritional deficiencies, weakening their immune system and ability to fight infection from communicable diseases (Brundtland, 2000). Third, a host-country’s weak environmental regulations may create pollution havens, which attract the most polluting activities of multinationals, given the low likelihood of being sanctioned, thereby degrading the host-country’s natural environment (Berry, Kaul, & Lee, 2021; Jorgenson, 2009; Li & Zhou, 2017). Such negative impacts on the natural environment can foster epidemics, because poor water, sanitation, and air quality contribute to the transmission and spread of communicable diseases (World Health Organization, 2021).

For example, according to the New York Times, Coca-Cola Femsa extracted more than 300,000 gallons of water a day in a southern Mexican state, which intensified chronic water shortages for the local indigenous population (Lopez & Jacobs,



2018). In turn, the water shortages have made soft drinks more available and affordable than potable water in those communities, possibly exacerbating noncommunicable diseases such as obesity and diabetes among the population. Noncommunicable diseases exacerbate the severity of communicable diseases, as was demonstrated in a recent study on the distribution of comorbidities among adult tuberculosis patients in Chiapas, which confirmed that the most prevalent comorbidity<sup>2</sup> was diabetes (Rashak et al., 2019).

### **Urbanization**

Public health scholars have linked the increased urbanization of the last decades to the rapid spread of diseases, and point to multinationals as the primary driver, arguing they are partially responsible for the increase of communicable diseases (Barnett & Whiteside, 2002; Saker et al., 2004; Washer, 2010). In host countries, highly urbanized areas and mega-cities attract multinationals that benefit from agglomeration, including access to infrastructure, affordable workforce, and proximity to transportation hubs (Estrin, Nielsen, & Nielsen, 2017; Lorenzen, Mudambi, & Schotter, 2020; Yusuf & Nabeshima, 2005). These benefits help multinationals lower entry costs and risks (Goerzen, Asmussen, & Nielsen, 2013; Zhu, Aranda Larrey, & Santos, 2015). As multinationals move into highly urbanized areas, an increasing concentration of multinationals in a given urban area makes it appealing for the rural population to move into the city searching for jobs and a better life (Estrin, Nielsen, & Nielsen, 2017). The ever-growing number of people moving from the countryside into crowded cities and high-density urban slums leads to overcrowding and a lack of essential sanitation services (Washer, 2010). Overcrowding, added to poor urban planning, can foster epidemics (Alirol, Getaz, Stoll, Chappuis, & Loutan, 2011; Krämer, Kretzschmar, & Krickeberg, 2010).

In addition, rural migrants tend to adopt city-based lifestyles and use more resources once they become urbanites. The migration-led growth in urban areas requires cities to expand into surrounding areas to build new infrastructures, such as roads, water, sanitation, and energy services (Washer, 2010). As the city limits extend into undeveloped land and forests (van Vliet, 2019; Wu, Li, & Yu, 2016), the surrounding ecosystems are disrupted, stressing its wildlife, and increasing the susceptibility of animals to infection, and

hence the likelihood of the transmission of viruses from animals to people (Daszak et al., 2000; Wu et al., 2017).

The 2003 SARS epidemic demonstrates how urbanization influences the emergence and spread of communicable-disease epidemics. Agricultural drivers, anthropogenic influences, and shifting human and animal population dynamics associated with urbanization played a role in its emergence (Reyes, Ahn, Thurber, & Burke, 2013). SARS then spread rapidly within provinces and newly urbanized cities in mainland China, infecting approximately 7,429 people and killing 685 others (Ruan & Zeng, 2008), representing over 90% of global cases and over 88% of deaths.

### **Foreign direct investment**

The relationship between foreign direct investment and a host-country's population health has drawn the attention of public health and development studies scholars (Alsan, Bloom, & Canning, 2006; Burns, Jones, Goryakin, & Suhrcke, 2017; Ghosh & Renna, 2015; Jorgenson, 2007, 2009; Labonté, 2019; Nagel, Herzer, & Nunnenkamp, 2015). One main motive for companies to invest in foreign countries is to access various resources for their global operations (Dunning, 1993; Makino, Lau, & Yeh, 2002; Zhu et al., 2015). We identify two types of resource-seeking foreign direct investment activities – low-cost labor and natural resources – which can foster the emergence of a communicable-disease epidemic in host countries.

First, multinationals frequently engage in foreign direct investment to access cheap labor in the so-called “low-wage havens” (Mani & Wheeler, 1998), thereby lowering operational costs and enabling them to remain competitive in international markets. Multinationals from developed countries have traditionally lowered their production costs by locating manufacturing facilities in low-wage developing countries (Lorenzen et al., 2020; Zhu et al., 2015). The local effects of this downward pressure across multinationals' value chains in host countries have led to low wages and unsafe and unhealthy working conditions – in so-called sweatshops (Arnold & Bowie, 2003, 2007) – which tend to increase human contact in crowded and unsanitary working spaces, creating the perfect storm for the rise of epidemics (Barnett & Whiteside, 2002).

Second, multinationals can also engage in foreign direct investment activities to access raw materials in host countries rich in natural resources (Smith, 2015). Natural resource-seeking

investments, such as mining and logging, may deteriorate the host-country's natural environment (Bird, 2016; Wegenast & Beck, 2020; Yakovleva & Vazquez-Brust, 2018). When companies destroy forests to grow crops, mine, or build infrastructure, they are likely to weaken animals' immunological systems, which increases the likelihood of zoonosis and thereby potential communicable-disease outbreaks within the country (Carrington, 2020; Rohr et al., 2019; World Wide Fund For Nature, 2020).

The case of the Nipah virus, a zoonotic virus that appeared in Malaysia and Singapore in 1999 (CDC, 2020a), may be traced back to foreign direct investment-induced deforestation in Indonesia. According to the non-profit organization, GRAIN (2007), the American multinational Cargill launched its first palm-oil plantations in Sumatra, Indonesia, in 1997, and the Malaysian multinational Kuok Group established the country's largest sugar plantation in Indonesia in the 1970s, both likely having accelerated the country's deforestation. It is believed that such deforestation in the Indonesian forest decimated fruit trees that local bats feed on, driving the bats' migration to neighboring Malaysia, where pigs on commercial farms were infected with the Nipah virus, following which pig farmers contracted the disease (Kahn, 2011).

### ***Corporate political activity***

Corporate political activities refer to business efforts to influence government regulations and policies for their benefit (Getz, 1997). As many multinationals follow a system based on economic growth and profit maximization (Buckley & Casson, 1998; Freudenberg, 2014; Young & Makhija, 2014), they may engage in activities – e.g., lobbying, political contributions, and informal connections to local elites – that could weaken the host-country's regulations that are supposed to protect their population's health and mitigate the emergence of epidemics (Harvey, 2021). We discuss the connections between multinationals' political activities in the host countries and epidemics in three industry groupings: unhealthy commodity, extractive, and pharmaceutical industries.

First, multinational political activities in unhealthy commodity industries, such as tobacco, alcohol, and processed food, have received particular attention due to the harmful nature of many of their products (Clapp & Scrinis, 2017; Freudenberg, 2014; Moodie et al., 2013). Some multinationals in these industries seek to shape policies and influence

regulations for their financial gains at the expense of the local population's health (McKee & Stuckler, 2018; Mialon, Swinburn, Allender, & Sacks, 2017). Smoking and eating unhealthy foods are risk factors for noncommunicable diseases, such as cancer and obesity, which could also lead to impaired immune responses (Dobner & Kaser, 2018), making the local population more vulnerable to communicable diseases (Mendenhall, Kohrt, Norris, Ndeti, & Prabhakaran, 2017).

Second, there is some evidence that multinationals in extractive industries, like oil, gas, and mining, weaken the host-country's health and environmental regulations to reduce the costs of natural-resource extraction (Elum, Mopipi, & Henri-Ukoha, 2016). These extractive operations often stress ecosystems by polluting air, water, and soil, and clearing out forests (Edwards, Sloan, Weng, Dirks, Sayer, & Laurance, 2014; Yakovleva & Vazquez-Brust, 2018), which increases the potential emergence of epidemics (O'Brien, 2013).

Finally, big pharmaceutical multinationals may obstruct equitable access to drugs to treat communicable-disease infection in host countries by lobbying host governments for intellectual property protections (Grover, Citro, Mankad, & Lander, 2012). For example, pharmaceutical multinationals can go on a lobbying campaign against host-country governments to block laws that allow domestic generic producers to produce low-price copies of patented drugs on HIV/AIDS held by the multinationals (Kishore, Kolappa, Jarvis, Park, Belt, & Balasubramaniam, 2015). Such lobbying practices may increase the price of medications for communicable diseases and weaken the host-country's capacity to control and prevent epidemics.

The case of ExxonMobil is illustrative of how a multinational's corporate political activity could facilitate the emergence of epidemics. According to the Open Society Justice Initiative (2010), the oil multinational partially relied on the highly corrupt political environment in Equatorial Guinea to expand its operations and obtain natural resources, the benefits of which accrued, not to the local people, but to the country's ruling elite through corrupt contracts and illicit payments from the oil industry. Shah (2013) claims that the company contributed to weakening the government's capacity to effectively contain malaria in the country by funding the country's dictator and senior officials through bribery.





## From Epidemics to Global Pandemics

A pandemic is defined as “an epidemic occurring worldwide or over a wide area crossing international boundaries, and affecting a large number of people” (World Health Organization, 2007: v). A communicable-disease epidemic is declared a pandemic by the World Health Organization if the disease cannot be contained in the region where it originated, and begins to spread across multiple countries. We identify two international business contextual factors (trade barriers, global migration) and two activities of multinationals (global supply chain management, international travel) that may trigger a communicable-disease pandemic. We consider that these four factors are likely to facilitate the evolution of a localized epidemic into a global pandemic.

### *Trade barriers*

The growing number of multilateral, bilateral, and regional trade agreements has accelerated global trade liberalization by lowering tariffs and non-tariff barriers (Bagwell & Staiger, 2004). Removing trade barriers generally facilitates international trade (Baier & Bergstrand, 2007; Kohl, Brakman, & Garretsen, 2016; Rose, 2004; Subramanian & Wei, 2007), which in turn could lead to a global proliferation of communicable diseases affecting humans, animals, and plants (Priyadarsini, Suresh, & Huisingh, 2020; Saker et al., 2004; Smith, 2006). Increased international trade increases the speed of the translocation of viruses across geographical and ecological boundaries, which ordinarily constrain their spread, thus increasing person-to-person transmission and large-scale spread (Morse et al., 2012). Hence, non-tariff trade barriers, such as sanitary and phytosanitary measures (World Trade Organization, 1998) and meat and poultry processing standards for the reduction in pathogen levels (Todd, 2004), as well as quarantines and travel restrictions, are often established as a means to slow the spread of communicable diseases across international borders.

However, non-tariff trade barriers can also have the opposite effect by increasing the risk of pandemics, because they can restrict trade in supplies needed to fight communicable diseases. Examples include export restrictions on medical supplies, personal protective equipment, and vaccines. The COVID-19 pandemic highlighted that many countries still apply non-tariff trade barriers that increase prices and limit the availability of health-related essentials, such as pharmaceuticals,

vaccines, and medical equipment (Baldwin & Evenett, 2020; Evenett, 2020). During the first months of the COVID-19 outbreak, China hoarded –95 masks even though their manufacturer, 3M, had a plant in China (Handfield, Graham, & Burns, 2020). Seventeen countries, accounting for five percent of traded calories, restricted exports of staple foods to protect food supplies during the pandemic (Laborde Debucquet, Mamun, & Parent, 2020). Kazakhstan, Russia, and Vietnam reduced exports of traded calories by almost 50 percent or more because of the COVID-19 pandemic (Laborde Debucquet et al., 2020), while Kazakhstan banned wheat exports entirely (Laborde Debucquet et al., 2020). Thus, trade barriers may make it hard to prevent pandemics by magnifying supply chain issues, such as the lack of medical supplies and inefficient distribution that reduce international coordination and increase production problems in global values (Baldwin & Evenett, 2020; Kerr, 2020).

### *Global migration*

In general, migration has been historically linked to the spread and growth of epidemics (Apostolopoulos & Sönmez, 2007; Gushulak & MacPherson, 2004; Labonté & Ruckert, 2019). Social, economic, political, and environmental factors push people to migrate from their home country to other regions where they expect to find better living and working conditions (Barnard, Deeds, Mudambi, & Vaaler, 2019; Reade, McKenna, & Oetzel, 2019). All forms of global migration – economic, labor, political, environmental, and climate – can bring people from different disease-endemic geographical regions to new, sometimes high-density regions, where more economic opportunities exist (Saker et al., 2004). When people move to a new country, they may create the perfect breeding ground for communicable-disease pandemics, because both migrants and host population groups belong to different disease environments, and, when in direct contact, they can be more susceptible to infecting each other (Castelli & Sulis, 2017; Willen, Knipper, Abadía-Barrero, & Davidovitch, 2017). Migrants often transport diseases from their home country to their new locations (Pavli & Maltezou, 2017), but are also more vulnerable to pathogens in their destination country because their immune systems are unprepared for the new disease environment (Shlomowitz & Brennan, 1994; Watts, 1987).

However, little attention has been paid to the relationship between migration and health. We still do not know much about the impact of different forms of migration on the epidemiology of communicable diseases. Here, we focus on one case of labor migration, temporary workers in the agriculture sector – deemed essential workers – because they are directly connected to international business and communicable diseases. In the United States, 65 percent of the native-born workforce are essential workers, while 69 percent of immigrants and 74 percent of undocumented workers are essential workers (Kerwin & Warren, 2020). Farmers hire many migrant workers, but many others also work for agricultural companies, including multinationals (Oxfam, 2004). As essential workers, temporary agricultural migrants are more susceptible to transmitting communicable diseases, not only during their displacement from and to their countries of origin but also at the workplace, as many have relatively low incomes, live in crowded housing, and are encouraged or even forced to work, even when they are sick (Beatty, Hill, Martin, & Rutledge, 2020).

In addition, temporary agriculture workers are in close contact with nature, making them more prone to be vectors of transmission, and they may lack health insurance, which discourages them from accessing healthcare when they get sick (Connor, Layne, & Thomisee, 2010; Knight, 2020), spreading infections even faster. During the height of the pandemic in the United States, migrant workers were at high risk of contracting COVID-19, as a result of their status as essential workers in maintaining the nation's food supply, unsafe crowded working and living conditions, and lack of access to social protection and fundamental labor rights. Across the country, COVID cases surged in 2020, affecting fruit and nut harvesters in California (Lopez, 2020), fruit packers in Washington State, tomato growers in South Florida (Crampton, 2020), and agricultural producers in south New Jersey (Shearn, 2020) – all working, living, and dining in crowded surroundings that contribute to contagion. In sum, a global workforce and the displacement of seasonal migrants across borders can contribute to the emergence of pandemics.

### ***Global supply chain management***

Many multinationals assemble complex global supply chains – composed of multiple partners located in multiple continents – to reduce

production costs and expand into international markets (Gereffi & Lee, 2012; Hernández & Pederesen, 2017). Due to the complexity of global supply chains, companies tend to grapple with effective supply chain monitoring and management (Kim & Davis, 2016). Global supply chains may also transfer health risks across borders through the production and distribution of goods and services (Frenk et al., 2014). For instance, global supply chains require site visits, procurement negotiations, and personnel rotations or interactions – all requiring people to cross borders (Jandhyala & Phene, 2015; Kano, 2018), which could act as a transmission vector. We focus on two connectors between global supply chain management and communicable diseases: (1) supply chain complexity and lack of traceability and (2) supply chain compliance with health, labor, and environmental standards.

Possessing a host of suppliers in multiple countries increases monitoring costs and hinders a multinational's ability to monitor its supply chain across borders (Webb, 2018). In addition, multinationals' complex global supply chains often face a situation where sensitive information is not fully exchanged between the buyer and the supplier in the host country (Kim & Davis, 2016; Wilhelm, Blome, Wieck, & Xiao, 2016). For example, this complexity could hinder the traceability of the origin of communicable diseases linked to agricultural multinationals' activities (Freitas, Vaz-Pires, & Câmara, 2020), likely facilitating their transmission and spread. In the context of supply chains for medicines in developing countries, complex coordination between multiple stakeholders – including donors, manufacturers, government agencies, and prescribers and dispensers – with widely divergent objectives can be a barrier to increasing access to medicines that are essential for addressing communicable-disease epidemics and pandemics (Kraiselburd & Yadav, 2013). Such complex coordination can hinder information flows and monitoring, and slow the delivery of medicines to the end-patient through the supply chain networks (Yadav, 2015).

Poor environmental, working, and health conditions of multinationals' supply networks could increase the risks of occupational transmission and the stress of working in communities overwhelmed by epidemics (Dharmadhikari, Smith, Nardell, Churchyard, & Keshavjee, 2013; Solinap, Wawrzynski, Chowdhury, Zaman, Abid, & Hoque, 2019). Hence, multinationals may need to monitor suppliers' compliance with health, labor, and environmental standards to prevent the onset of



communicable-disease epidemics. Despite commitments by multinationals to sourcing from suppliers adhering to social, health, and environmental standards, lower-tier suppliers in global supply chains sometimes fail to comply with such standards (Villena & Gioia, 2018, 2020), potentially triggering pandemics. For example, Knudsen (2013) investigates how multinationals' adoption of international private business regulations affects working conditions in global supply chains. She argues that compliance with such private regulation is a substantial cost burden for smaller business partners. This may incentivize non-compliance, aggravating working conditions across global supply chains. In essence, poor compliance with health, working, and environmental standards along global supply chains could bolster pandemics.

The 2009 H1N1 pandemic likely originated in the Mexican pig farming town of La Gloria, in Veracruz state, on farms owned by Granjas Carroll de México (Schmidt, 2009), which is half-owned by Smithfield Foods – an American pork producer and food-processing multinational (Cohen, 2009). A lack of health control measures in this facility contributed to the emergence of the disease. Factory pig farming relies on concentrated animal feeding operations in which thousands of animals are housed in enclosed areas, which facilitates the mutation of “viral pathogens into novel strains” (Schmidt, 2009: A395). It is purported that concentrated animal feeding operations played a role in the initial outbreak of H1N1, which spread rapidly from the workers to the local community, and across Mexico and other countries via human-to-human transmission. According to estimates of the CDC (2019), H1N1 killed between 151,700 and 575,400 people worldwide during its first year of circulation.

### **International travel**

This section focuses on two travel activities closely linked to international business: business travel and tourism. International business depends on and benefits from international travel, the temporary and voluntary movement of people across different international locations. It is undeniable that international travel, especially by air, allows pathogens to reach any corner of the planet in a few days without being detected, since the incubation period of communicable diseases is usually more than 36 hours (Findlater & Bogoch, 2018). The acceleration of both international business

travel and tourism increases the spread of pathogens (Saker et al., 2004; Wilson, 2003), thereby boosting the risk of pandemics (Morse et al., 2012).

First, prior research shows a strong association between the frequency of international travel and the spread of communicable diseases (Fraser, Donnelly, Cauchemez, Hanage, Kerkhove Van, & Hollingsworth, 2009; Hollingsworth, Ferguson, & Anderson, 2007; Hosseini, Sokolow, Vandegrift, Kilpatrick, & Daszak, 2010). The probability that international business travelers will transmit communicable diseases across international borders depends on the disease environment of both the home and host countries (Wilson, 2003). Business travel can increase the spread of communicable-disease viruses, such as those linked to airborne diseases (e.g., influenza, tuberculosis), blood-borne diseases (e.g., HIV/AIDS, hepatitis B Virus), vector-borne and zoonotic diseases (e.g., Lyme disease, malaria), and waterborne diseases (e.g., cholera, diarrhea) (World Health Organization, 2012). Even if the tracing may ultimately be inconclusive, some of the first COVID-19 infections are likely to be traced back to international business travelers (CDC, 2020b).

Second, players in the international tourism industry – such as commercial airlines, hospitality, and cruise multinationals – rely on transporting their customers across borders. In what has been called “the democratization of global travel,” the number of international tourist arrivals worldwide broke the record in 2019 with nearly 1.5 billion tourists (World Tourism Organization, 2020). Such temporary mobility of people around the globe can accelerate pandemics because it allows pathogens to quickly reach new international locations. In the past, pandemic flu strains traveled the globe in six to nine months. Tourism can increase the speed at which disease is disseminated, as seen in the case of the H1N1 swine flu; given Mexico's importance as an international tourist destination, this disease, which originated in Mexico, traveled around the world in just a few weeks (Khan, Arino, Hu, Raposo, Sears, & Calderon, 2009).

Earlier, the 2003 SARS epidemic combined aspects of both business travel and tourism, leading to the first pandemic of the twenty-first century (Cherry & Krogstad, 2004). The disease eventually reached Hong Kong, where an infected Chinese tourist spread the disease to several other guests staying at the same hotel (Reyes et al., 2013). International travel then facilitated SARS spreading to other major urban centers worldwide (Abdullah,

Thomas, McGhee, & Morisky, 2006), infecting approximately 8,096 people and killing 774 (World Health Organization, 2015) before quarantines and other public health measures were implemented to control its spread.

### MOVING FORWARD

International business activities may not entirely prevent the next communicable disease from emerging. Still, they can be instrumental in keeping a small outbreak from turning into an epidemic, or, worse, spreading globally into a pandemic like COVID-19. In this essay, we identify contextual factors of international business and specific activities of multinationals that could aggravate the impact of communicable diseases on society. These factors have important implications for both international business scholars and managers of multinationals.

#### Research Implications for International Business Scholars

As international business and management scholars, we intend to bring into our conversations critical perspectives on international business nurtured in other fields, including public health, sustainability, and international development. Even if harsh, some of those critiques are legitimate. Rather than turning our backs on experts in other disciplines, we see the potential for international business scholars to collaborate with health experts to fill knowledge gaps between international business and multinationals on the one side and communicable diseases and global health on the other. Two contributions from public health research can be particularly useful for the international business research community: the commercial determinants of health and the corporate health impact assessment.

Public health scholars refer to the “commercial determinants of health” to describe how “health outcomes are determined by the influence of corporate activities on the social environment in which people live and work: namely the availability, cultural desirability, and prices of unhealthy products. Thus, the environment shapes the so-called lifeworlds, lifestyles, and choices of individual consumers – ultimately determining health outcomes” (Kickbusch et al., 2016, pp. e895–e896). The commercial determinants of health emphasize corporate responsibility in chronic and noncommunicable diseases, such as obesity,

diabetes, cardiovascular diseases, and cancer (de Lacy-Vawdon & Livingstone, 2020; Kickbusch et al., 2016; McKee & Stuckler, 2018; Mialon et al., 2020). This stream of literature can shed light among international business researchers interested in disentangling the connections of international business contextual factors and multinationals’ activities to human health.

Public health experts have also developed tools, such as the corporate health impact assessment which builds on decades of research on the impact of corporations on health. The corporate health impact assessment is, in fact, a systematic valuation of the possible health-related externalities of current companies’ operations, and is readily available to measure the impacts of multinationals’ practices on environmental, social, and economic factors that determine health outcomes (Baum et al., 2016). Thus, this tool may inform multinationals of potential actions to increase their positive health impacts and mitigate negative health impacts to prevent the emergence and spread of communicable diseases in home and host countries, based on their global and national operating contexts and organizational structure and practices. Moreover, even if mainly designed to reduce the business impact on noncommunicable diseases, such a tool can also be extended to include communicable diseases as well as effectively lessen the negative impact of communicable diseases, given that several communicable diseases can develop comorbidities with noncommunicable diseases (Marais, Lönnroth, Lawn, Migliori, Mwaba, & Glaziou, 2013). To bridge public health research with international business, we propose potential research questions on the connections between international business, the emergence of epidemics in host countries, and the shift from epidemics to global pandemics in Table 2.

#### Practical Implications for Managers of Multinationals

Multinationals are depicted as actors that tend to affect human health negatively. Still, they can also be instrumental in improving the health of all their home-and host-country’s stakeholders (Montiel et al., 2021). Therefore, beyond the potential for multinationals to prevent the emergence and spread of communicable diseases in the near future, companies should take a more prominent role in protecting human health by increasing the health outcomes of not only their employees but also the health of their external stakeholders, including



**Table 2** International business–communicable diseases research questions

Transitions	International business factors	Potential research questions
Emergence of epidemics in host countries	Host-country regulatory quality	<ul style="list-style-type: none"> <li>• How are differences in the quality of health-related regulations between home and host countries related to multinationals’ entry mode choice and the possible emergence of epidemics?</li> <li>• What mechanisms can multinationals implement to fill the regulatory voids for health in a host country?</li> </ul>
	Urbanization	<ul style="list-style-type: none"> <li>• To what degree can urbanization induced by international business activities contribute to the emergence of epidemics in a host country?</li> <li>• How can international business activities foster healthy working environments that prevent communicable-disease epidemics for rural migrants seeking jobs in urban areas in a host country?</li> </ul>
	Foreign direct investment	<ul style="list-style-type: none"> <li>• How can we tease out the directionality in the relationship between foreign direct investment inflows and a host-country’s population health?</li> <li>• What is the impact of different foreign direct investment motives and/or entry modes on a host country and the emergence of communicable-disease epidemics?</li> </ul>
	Corporate political activity	<ul style="list-style-type: none"> <li>• What is the impact of multinationals’ corporate political activities on a host-country’s health policy, and how does it interact with the spread or prevention of communicable-disease epidemics?</li> <li>• What is the relationship between a host-country’s culture, multinationals’ corporate political activities, and the emergence of epidemics?</li> </ul>
Epidemics to global pandemics	Trade barriers	<ul style="list-style-type: none"> <li>• How does the liberalization of cross-border trade activities increase the likelihood of global pandemics?</li> <li>• How does a national government effectively implement sanitary and phytosanitary measures by addressing the trade-off between reduced pandemic-related risks and increased trade costs?</li> </ul>
	Global migration	<ul style="list-style-type: none"> <li>• Which types of global migration patterns fostered by multinationals’ activities have a greater impact on the likelihood of global pandemics?</li> <li>• Under what conditions are temporary migrant workers related to global pandemics?</li> </ul>
	Global supply chain management	<ul style="list-style-type: none"> <li>• How do multinationals adapt their global supply chain configurations to reduce disruptions of a future global pandemic?</li> <li>• How can multinationals better manage their supply chain traceability and complexity to mitigate global pandemics?</li> </ul>
	International travel	<ul style="list-style-type: none"> <li>• How can international business travel and tourism be conducted in a way that reduces the likelihood of global pandemics?</li> <li>• How do tourism multinationals incorporate the tail risks of a future global pandemic into their business models?</li> </ul>

consumers and host-countries’ local communities (Park, Montiel, Husted, & Balarezo, 2022). In the words of Claudia Rivera, Sustainability Director of Colombian food multinational Grupo Nutresa, during a March 2021 interview: “Healthier communities mean healthier business.”

First, multinationals can be better equipped to prevent the emergence of epidemics in host countries if they adopt a reliable corporate health impact assessment tool, similar to the one proposed by public health scholars (Baum et al., 2016). This tool is particularly pertinent to multinationals with subsidiaries in host countries with weak epidemic prevention institutions due to, for example, a lack

of resources, limited public health education, or vulnerable healthcare systems. For instance, multinationals could use the health impact assessment to minimize zoonotic events by paying special attention to how their operations at home and abroad affect ecosystems. Moreover, multinationals may share best practices on health risk prevention with their subsidiaries in host countries through technology, knowledge, and innovation transfer, and use that knowledge to curb the spread of different viruses.

Second, in the case of global pandemics, multinationals have the responsibility to exploit their capabilities to reduce the negative repercussions of



pandemics because of their global outreach. For example, companies may use their global supply chain capabilities to distribute essential products for communicable-disease control and prevention, including vaccines, masks, and personal protection equipment in countries with difficulty in acting rapidly. Where such capabilities do not exist, multinationals should begin to develop their unique pandemic response capability.

Finally, multinationals do not need to act in isolation in their quest to improve human health. Instead, companies can consider partnerships with host-country governments and civil society organizations. We suggest that global health partnerships become the new normal as part of the multinational's ordinary activities. For a planet and a human race that seem doomed to dealing with multiple grand challenges simultaneously, including climate change, pandemics, hunger, poverty, and violent conflict, the private sector has to be tapped as a crucial player to implement global sustainability (Margolis & Walsh, 2003; Scherer & Palazzo, 2011), and to be one of the main contributors to the 2030 Sustainable Development Goals (Montiel et al., 2021; Van Tulder, Rodrigues, Mirza, & Sexsmith, 2021). Recent evidence shows that, without the active engagement of multinationals during COVID-19, humanity would likely have suffered more during the pandemic. In the words of Núria Molina, Head of EU & Benelux at the Melinda and Bill Gates Foundation, during an interview on September 3, 2021: "The COVID-19 pandemic has shown us the need for global partnerships where multinationals have acted as essential partners of governments and NGOs to secure vaccine production and distribution globally at unprecedented speed." Not bringing multinationals into global partnerships – enshrined in the United Nations Sustainable Development Goal 17 on *Partnerships for the Goals* – to address not only the grand

challenge of human health but all grand challenges would be an enormous mistake.

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### NOTES

<sup>1</sup>This paper adopts the CDC Foundation's definition of public health as the scholarly field devoted to "protecting and improving the health of people and their communities. This work is achieved by promoting healthy lifestyles, researching disease and injury prevention, and detecting, preventing and responding to infectious diseases. Overall, public health is concerned with protecting the health of entire populations. These populations can be as small as a local neighborhood, or as big as an entire country or region of the world" (CDC Foundation, 2021).

<sup>2</sup>Public health scholars use the term "comorbidity" to indicate interactions between two or more diseases that can magnify the adverse impacts of both (Marais et al., 2013).

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