Chapter 13
COVID-19 Pandemic-Related Supply Chain Disruptions and Impacts on the Global Economy

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ABSTRACT

Humanity and the business world have had a very challenging period in the last two years due to unprecedented disease outbreaks. In December 2019, a novel infectious respiratory disease was found in Wuhan, Hubei Province, China. This disease affected almost all industries and all countries, regardless of developed or developing. The pandemic caused supply chain disruptions around the globe. In this study, the author presented the supply chain disruptions in detail caused by the COVID-19 pandemic, which is a specific type of disruption factor, and showed their global economic impacts. Country- and industry-specific cases and examples are examined. In addition, the measures that have been taken by the government authorities to alleviate the global economic impact of the pandemic are discussed.

INTRODUCTION

The World Health Organization (WHO, 2021) defines this disease as Covid-19 (Coronavirus) which is caused by the SARS-CoV-2 virus. Since its outbreak for the first time in December 2019, Covid-19 has spread rapidly around the globe. As of June 8, 2022, there are 530,266,292 confirmed cases and 6,299,364 deaths (WHO, 2022). In the first phase of the pandemic, the authorities have taken strict steps to stop the virus from spreading. At regular intervals, the lockdown in which people can only leave home in special circumstances was imposed by many governments (Atayah et al., 2021). International travel was restricted, and most of the cross-borders were closed (Wing et al., 2020). Passenger and freight transportation by air, sea, or highway is prohibited by the regulations.

The manufacturing industry is almost closed worldwide. Hotels and restaurants are closed at the beginning stage of the pandemic and then they worked at 50% of their capacity. The passenger trans-

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portation is restricted. IATA (2020) reported that in June 2020, international passenger traffic decreased by 96.8% and domestic traffic by 67.6% compared to June 2019. It will take until 2024 for global air passenger volume to return to pre-COVID-19 levels. (Kwon, 2020). Thus, the tourism and travel industry had financial problems. Social events that host large gatherings such as music concerts, sports, and cultural events were closed. Services in restaurants, hairdressers, and taxi usage have been blocked. Employees in many sectors were laid off or their wages were cut (Zou et al., 2020). It has more severe and varied consequences than earlier epidemic outbreaks such as the SARS-2003 and H1N1-2009 outbreaks (Chowdhury et al., 2021). Regardless of industry, various disruptions in supply chain of various products and services have been experienced.

Craighead et al. (2007) defined supply chain disruptions as "*unplanned and unanticipated events that disrupt the normal flow of goods and material in a supply chain and, as a consequence, expose firms to operational and financial risks*". Chowdhury et al. (2021) categorize the factors causing disruptions into four groups: natural, man-made, system failure, and financial. Earthquakes, floods, cyclones, and extreme weather conditions are examples of natural disasters. Strikes, traffic congestion, port congestion, theft, and fire are examples of man-made interruptions. Machine or technological failures, as well as obsolescence are examples of system failures. Exchange rate and bank interest fluctuations, as well as import-export restrictions, are all examples of financial disruptions. These disruptions have several impacts on the particular area in a supply chain such as the demand side, supply side, production, transportation, or the whole supply chain network. These impacts are demand drop, demand surge, reduced productivity, storage and access restrictions, raw material shortage and transportation interruptions. While previous natural disasters generally created demand-side interruptions, covid-19 caused interruptions on both the demand and supply sides (Kwon, 2020).

The covid-19 pandemic affected the consumption behavior of the consumers. While there was a decrease in the demand for certain products and services, especially in airline services, on the other side, panic buying behavior was observed in certain products such as medical supplies and hygiene products. The companies tried to cope up with the increased demand for these kinds of products by a quota limit. For instance, the demand for toilet paper is increased tremendously (Paul and Chowdhury, 2020). As well as fluctuations in demand, production decrease that appears due to the layoffs or decreasing the labor capacity, caused supply chain disruptions. There were also storage and access restrictions to products. Some companies had to close their warehouses after detecting the increase in the number of positive cases. Amazon is one of these firms. They closed the New Jersey warehouse temporarily until 26 December 2020 (Bhalla, 2020). One of the major disruptions is the raw material access problem. China is one of the biggest raw material providers for the manufacturing industry. Companies whose supply chains depend on suppliers in China have experienced significant disruption due to the closure or limited use of shipping terminals in China (Fortune, 2022).

In particular, the coexistence of negative demand shocks and negative supply shocks, which are called twin shocks, causes deterioration in macroeconomic indicators (Pakdemirli et al., 2020). The covid-19 pandemic crisis is a kind of twin shock. In this period of time, firstly supply disruptions existed since the country's home ban enforcement caused production to stop. Even if production continues, products could not be taken out of the borders due to customs barriers. Global trade in goods and services has been disrupted and the global economy has been greatly affected by this crisis. According to UNCTAD (2021b) report, global merchandise trade declined by almost 7.4% and global service trade declined 20% in 2020 compared with 2019. The World Bank stated that goods trade appears to have bottomed out in April 2020, with yearly declines of roughly 20%. COVID-19 has produced a trade contraction that

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