

The Socioeconomic Impacts of COVID-19 on the Manufacturing Industry in Vietnam

Bachelor Thesis for Obtaining the Degree

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International Management

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Affidavit

I hereby affirm that this Bachelor's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

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Abstract

The COVID-19 pandemic that began towards the end of 2019 put nations around the world in a spiral. No industry was left untouched by the pandemic, and losses were felt in many aspects. Vietnam is one of the globe's fastest-emerging manufacturers. The virus had a profound effect on the nation and the industry. This thesis aims to discuss the socioeconomic effects of the COVID-19 pandemic on the manufacturing industry in Vietnam. The significance of supply chains is explored to provide a more in-depth understanding of the topic. Extensive research has already been done on the impacts of the pandemic on the world and in Vietnam but are not specific to the manufacturing industry. Manufacturing is important because this industry contributes a significant amount to the nation's GDP. The research questions used to guide the research are:

1. Which socioeconomic factors were impacted the most by the COVID-19 pandemic in the manufacturing industry in Vietnam?
2. What disruptions did supply chains in the manufacturing industry face as a result of the COVID-19 pandemic?

A qualitative research design was adapted to aid in answering these questions. Interviews with experts holding upper-management positions in companies within the manufacturing industry were conducted, transcribed, and thoroughly analyzed. The research presented negative effect on the nation. The socioeconomic factors impacted the most were health, employment, financial stability, industrial output, and productivity. Furthermore, the most frequent supply chain disruptions were container shortages, port congestions, partner difficulties, domestic supply chain concerns, and a lack of raw materials.

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List of Abbreviations

CEO – Chief Executive Officer

CFO – Chief Financial Officer

CIP – Competitive Industrial Performance

COVID-19 – Coronavirus Disease 2019

CSO – Chief Strategic Officer

FDI – Foreign Direct Investment

FTA – Free Trade Agreement

GDP – Gross Domestic Product

I – Interviewee

KER – Key Economic Region

PMI – Purchasing Manager's Index

Q – Quarter

SCD – Supply Chain Disruption

UNIDO – United Nations Industrial Development Organization

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1 Introduction

1.1 Problem Statement

Ever since the progressive policy of *Doi Moi* that Vietnam introduced in 1986, Vietnam, previously one of the weakest economies, was propelled into a middle-income nation in the span of just one generation (Nguyen et al., 2018). The new policy encouraged business ownership and foreign investment as it introduced a new business climate allowing for a freer economy (Nguyen et al., 2018). Combined with growing globalization, Vietnam was transformed into one of the largest manufacturing hubs in Asia. The nation experienced an influx in foreign conglomerates as they shifted their manufacturing centers to low-labor-cost countries such as Vietnam (Läng, 2022). Additionally, more companies are looking to diversify their production away from China as to not be dependent on the economic giant (Lim, 2022, C. Nguyen, 2022). Many of these companies have recognized the potential of Vietnam as a nation that has a large and educated workforce. The country also exhibits numerous industrial clusters making it attractive for firms that want to expand their means of production to Vietnam (Source of Asia, 2022).

As the manufacturing industry in Vietnam has developed into an important factor in global supply chains, any disruptions that come to the country can be felt worldwide. In Vietnam, some industries were affected more than others. The industries that suffered the most due to lockdown measures are the hotel and tourism industry as well as the entertainment industry (Fernandes, 2020; Le & Lam, 2021). A study found that around 66.7% of Vietnamese families saw a decrease to their household income, further demonstrating the effects of the pandemic on the nation's socioeconomic wellbeing (Tran et al., 2020).

As Vietnam has developed into one of the larger manufacturing hubs, global supply chain disruptions have the ability to greatly affect various socioeconomic factors of the nation (Le & Lam, 2021). In the last half of 2020

and much of 2021, Vietnam saw the worst outbreak of the virus leading to many businesses reducing their operations or closing altogether. This created a significant unemployment problem (Le & Lam, 2021). Many laborers left to their hometowns leaving industrial regions with gap in the workforce once operations resumed. Industries suffering the most from labor shortages were missing an upwards of 40% of their labor force. Among the industries that were impacted the most were the electronics, computer and optical products manufacturing, leather and related products, apparel manufacturing, electrical equipment manufacturing, and textiles industry (General Statistics Office, 2021c). Towards the end of the third quarter of 2021, workers in Vietnam moved back to their home provinces in the tens of thousands as a result of the unemployment crisis (General Statistics Office, 2021c). Many were skeptical to move back as the ongoing worldwide pandemic created unrest among them. It was not until recently that the economy was able to start picking itself up. Despite this, the COVID-19 pandemic has left scars in the country that will take years to heal.

1.2 Purpose of the Study

This study aims to find out how the COVID-19 pandemic affected various socioeconomic factors in Vietnam. Additionally, other supply chain disruptions, either as a result of the pandemic or stand-alone disruptions, will also be explored. The purpose of this is to consider all possibilities that have an effect on socioeconomic factors. This looks to avoid labelling the pandemic as the sole reason for the socioeconomic issues faced by the nation and considering other events that may play a role as well. Furthermore, the thesis aims to discover what actions were taken by government institutions, companies, and the Vietnamese people. By analyzing these actions, the paper will reveal the effectiveness of their efforts in counteracting the impact of the pandemic.

While there have been many studies conducted concerning the impacts of the pandemic on multiple factors, there is a gap in the research on how specific

industries within Vietnam were affected. The aim of the thesis is to close this gap by offering information provided through the use of secondary data analysis as well as expert interviews. The findings from the research may also prove to be applicable to other developing nations with economies largely tied to foreign investment and trade.

1.3 Research Questions

To guide the study, the following research questions will be used:

1. Which socioeconomic factors were impacted the most by the COVID-19 pandemic in the manufacturing industry in Vietnam?
2. What disruptions did supply chains in the manufacturing industry face as a result of the COVID-19 pandemic?

2 Literature Review

2.1 Resilience Theory

Resilience theory states that it is not the crisis that is the problem, it is the way that the crisis is dealt with. It is crucial for an industry as important as the manufacturing industry in Vietnam to build resilience to crises. Dormady et al. (2019) define economic resilience in two ways, static and dynamic economic resilience. Static resilience is a firm's ability to continue operations despite external shocks while dynamic resilience is the firm's ability to recover from crises (Dormady et al., 2019).

Additionally, this idea is supported by Greenham et al. (2013), in which they state that resilience also comes from adapting new technologies to the firm and innovating new ways to deal with adversity. A framework focusing on balance in production, adapting production to the local and global environment, as well as investing resources in improving the overall socioeconomic wellbeing of the economy (Greenham et al., 2013, p. 6).

2.2 Supply Chains

A supply chain is defined as a logistics system consisting of all parties that are involved in fulfilling a customer order (Chopra, 2016). This entails the collaboration between raw material collectors, manufacturers, transporters, warehouses, wholesalers, and retailers. The steps in the supply chain depend on the order that the supply chain is aiming to fulfill. Generally, the more complex the final product is, the more steps and parties there will be in the supply chain.

The goal of every supply chain is to maximize its net value generated (Chopra, 2016). The net value of the supply chain can be found through the difference of the value of the final product received by the customer and the total cost of all components of the supply chain needed to deliver the product to the customer. The result of this difference is often referred to as the supply chain surplus (Chopra, 2016). It can also be defined as the mathematical equation as presented below.

$$\textit{Supply Chain Surplus} = \textit{Customer Value} - \textit{Supply Chain Costs}$$

2.2.1 History of Supply Chains

Supply chains have existed since ancient times, however remained largely at a local scale due to the lack of efficient transportation. It wasn't until the early 19th century when the first railroads were introduced that companies could consider transporting goods at a larger scale (Logmore, 2019).

Supply chains evolved a great deal during the Second World War due to the need of getting supplies, munitions, and food to the front lines as fast as possible (GlobalTranz, 2015). The 1940s to 1950s saw increased levels of mechanization within the supply chain. In the 1960s, companies focused on improving the general efficiency of their supply chains, which saw a rise to warehouses and freight distribution (GlobalTranz, 2015).

In the 60s and 70s, supply chain processes were starting to be logged in computers rather than manually. The 1980s and 1990s were home to innovative technologies that allowed the digitalization of complex supply chains (GlobalTranz, 2015).

In the 2000s, supply chain management received more attention from company executives as they recognized a lot of logistics operations can be made to be much more efficient, in turn reducing costs (GlobalTranz, 2015). Present-day supply chains can be very complex due to globalization and all the different steps needed to deliver a product to the customer. Companies invest in new technology allowing them to take the most efficient course of action for their supply chains (GlobalTranz, 2015).

2.2.2 Stages of the Supply Chain

According to Chopra (2016), “a typical supply chain may involve a variety of stages including customers, retailers, distributors, manufacturers, and suppliers.” Chopra (2016) also states that it would be more accurate to call the supply chain a supply network, as supply chain implies that each stage only has one player. In reality, a single stage in the supply chain may depend on a number of suppliers in order to push the product onto the next stage in the supply chain (Chopra, 2016). These five stages in the supply chain can be defined as follows:

- **Supplier:** The supplier is the first step to most supply chains, as they provide all the materials needed for the final product. In some cases of complex products, some suppliers have their own suppliers that they rely on to push the component onwards. Chopra (2016) categorizes these suppliers into tier 1 and tier 2, in which tier 1 suppliers receive material from tier 2 suppliers.
- **Manufacturer:** This stage of the supply chain facilitates the creation of the product out of the raw materials provided by the suppliers (Elmhurst University, 2019). Hugos (2011) expands on this by saying

that manufacturers can also produce intangible products, including services as a product. Additionally, tangible products are usually produced in areas with cheaper labor to maximize the supply chain surplus (Hugos, 2011).

- **Distributor:** Distributors, also known as wholesalers, act as a buffer between demand fluctuations and the manufacturers as their role is to hold inventory to sell in large quantities (Hugos, 2011). Distributors tend to sell products in bulk to other companies rather than to individual customers.
- **Retailer:** Retailers store inventory on a smaller scale in order to sell a variety of products to the general public. Retailers are much freer to implement their own sales strategies in order to attract and engage customers (Hugos, 2011).
- **Customer:** The customer or consumer can be considered the most crucial part of the supply chain, as they are the reason the supply chain exists (Chopra, 2016). The customer can be any entity that purchases the end product of the supply chain, this can include companies and individuals as well (Hugos, 2011).

As mentioned before, the supply chain works more like a network as many different companies within the same stage must collaborate with one another to contribute to their role in producing the final product. As brought up by Chopra and Meindl (2016), “each stage in a supply chain is connected through the flow of products, information, and funds.” Figure 1 is a simplified diagram of what a supply chain can look like. The emphasis mostly lies within the idea that the many different stages are interconnected, and the supply chain isn’t always a straight line.

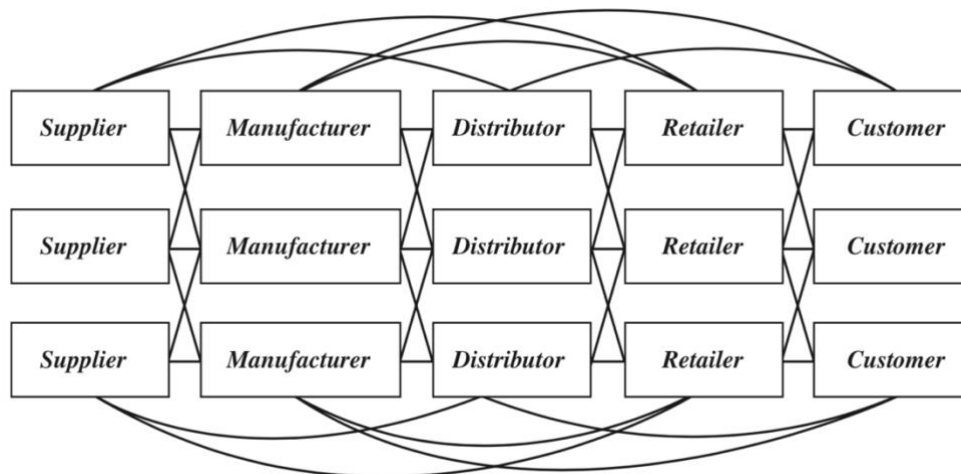


Figure 1 - Supply Chain Stages (Chopra & Meindl, 2016, p.3)

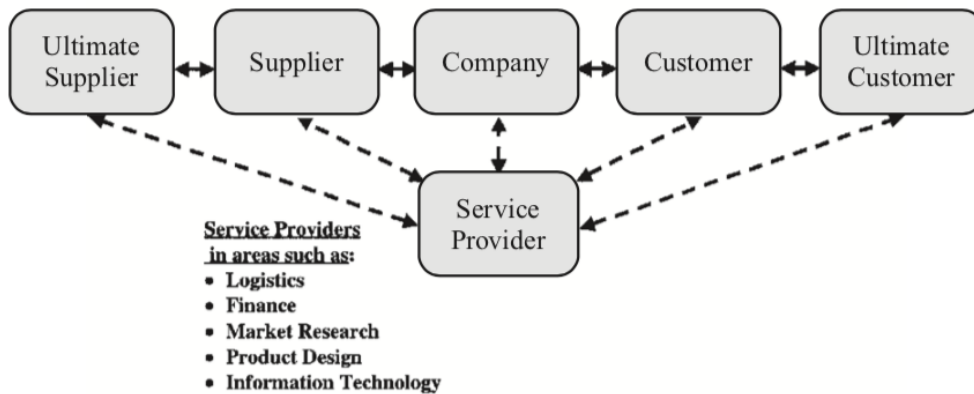
The design of the supply chain is largely dependent on the customer and their needs. Depending on the product, some of these stages may not need to be included for the product to reach the customer (Chopra & Meindl, 2016).

A more complex supply chain diagram can be observed below in Figure 2. More complex supply chains can have more than one company or business per stage. For example, a distributor can transport the product to several different retailers as well as directly to the customer themselves (Hugos, 2011). Then again, firms are continuously looking for the best ways to maximize their supply chain surplus. Meaning that if there is a possibility to deliver the product to the customer without a certain stage, the firm will most likely drop the stage to improve efficiency (Hugos, 2011).

Simple Supply Chain



Extended Supply Chain



Example of an Extended Supply Chain

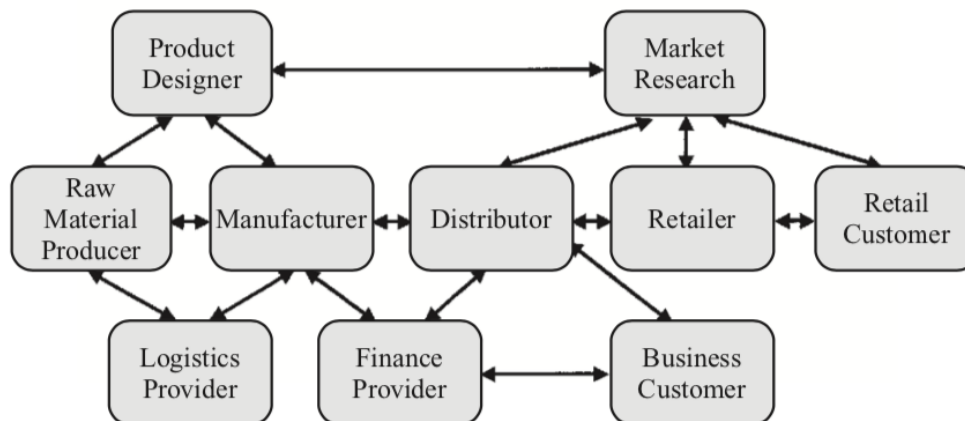


Figure 2 - Supply Chain Structure (Hugos, 2011, p.27)

2.2.3 Globalization in Supply Chains

Globalization refers to the increasing interdependence of global economies, cultures, and populations created “by cross-border trade in goods and services, technology, and flows of investment, people, and information.” (Kolb, 2018). Globalization exists within supply chains as well. This can range anywhere from outsourcing to transporting products to multiple countries for selling.

Globalization is in general beneficial for companies as they can move their means of productions or labor force to cost-effective areas. For example, a lot of apparel companies moved their production to low-labor-cost countries, especially in Asia (Chopra, 2016).

Globalization has existed on a very small scale since ancient times as people moved around and traded goods frequently. However, it wasn't until the 19th century that globalization scaled up. It was made easier through the invention of "steamships, railroads, the telegraph, and other breakthroughs." (Kolb, 2018). The period from the 19th century to the 20th century is referred by Kolb (2018) as the first wave of globalization. From the start of the 1900s until around the mid-1940s, there was a dip in international cooperation due to the Great War, leading to the policy of *protectionism* in a lot of countries. 1929 to 1939 saw the Great Depression, which did not help encourage trade and movement between countries. In 1944, the allied forces of World War II, with the exception of the Soviet Union, took part in the Bretton Woods Conference, "setting new postwar rules and institutions to liberalize trade and revive economic growth." (Kolb, 2018). The second wave is considered to be from the 1940s until present day, with minor dips and rises as the result of growing economies and politics (Kolb, 2018).

While globalization does prove beneficial for both companies and consumers, there are risks that come along with it. Any problem that can potentially restrict a stage in the supply chain to carry out its job can put the entire supply chain on hold (Chopra, 2016). When companies make the decision to externalize some of their operations or to outsource to different countries, they need to evaluate the risks and decide whether the costs saved is worth the additional uncertainty. Chopra (2016) sums up this idea with the claim that "the only constant in global supply chain management seems to be uncertainty." A likely problem that companies need to consider that the labor cost in several countries such as China and India increase at a much faster rate

(Goel et al., 2008). Chopra (2016) argues that outsourcing to low-labor-cost countries is more profitable for products that are more labor-intensive. Additionally, when outsourcing, companies should consider ways to make transportation more efficient. Some companies have special assembly or packaging systems so that their products take up as little space as possible (Chopra & Meindl, 2016). Sometimes, firms need to decide which components of the final product need to be outsourced. This is usually decided by analyzing the labor and transportation costs to determine which fit would be the most efficient and profitable (Chopra, 2016).

2.3 The Manufacturing Industry

The manufacturing industry concerns itself with the transformation of raw materials into products and goods. Depending on the specific industry, it may range from highly automated processes or it can also be labor-intensive. Various specific industries that lie under the manufacturing industry are industries that “produce aircraft, automobiles, chemicals, clothing, computers, consumer electronics, electrical equipment, furniture, heavy machinery, refined petroleum products, ships, steel, and tools and dies” (The Editors of Encyclopaedia Britannica, 2023).

2.3.1 Manufacturing and its Impact on Socioeconomics

The term “manufacturing industry” acts as an umbrella term covering a large spectrum of industries. The vastness of the manufacturing industry implies that it offers itself as a large employer in any economy. In countries with large capacity for production, such as Vietnam, any changes within the industry can have a significant impact on the socioeconomic environment of the nation (Bartels, 2021). By the end of the third quarter of 2022 in Vietnam, out of a total of 50.5 million people employed, nearly 12 million were employed in the manufacturing industry, meaning that almost 24% of all employed individuals work in this sector (Bartels, 2021).

The recent pandemic has made it clear that many countries were not prepared for a large-scale health and economic crisis. All industries across the board, including manufacturing, were severely impacted in many nations. After two years of data gathering, Andreoni and Lavopa (2022) were able to find output trends between low-income, lower-middle income, higher-middle income, and high-income nations during the pandemic as well as use UNIDO’s Competitive Industrial Performance (CIP) index to measure a country’s industrial capabilities. Their study revealed that countries with above average industrial capabilities were less impacted by the pandemic. It was also discovered that middle-income and lower-income nations suffered higher percentages of GDP loss (Andreoni & Lavopa, 2022). These trends can be followed in the figures below.

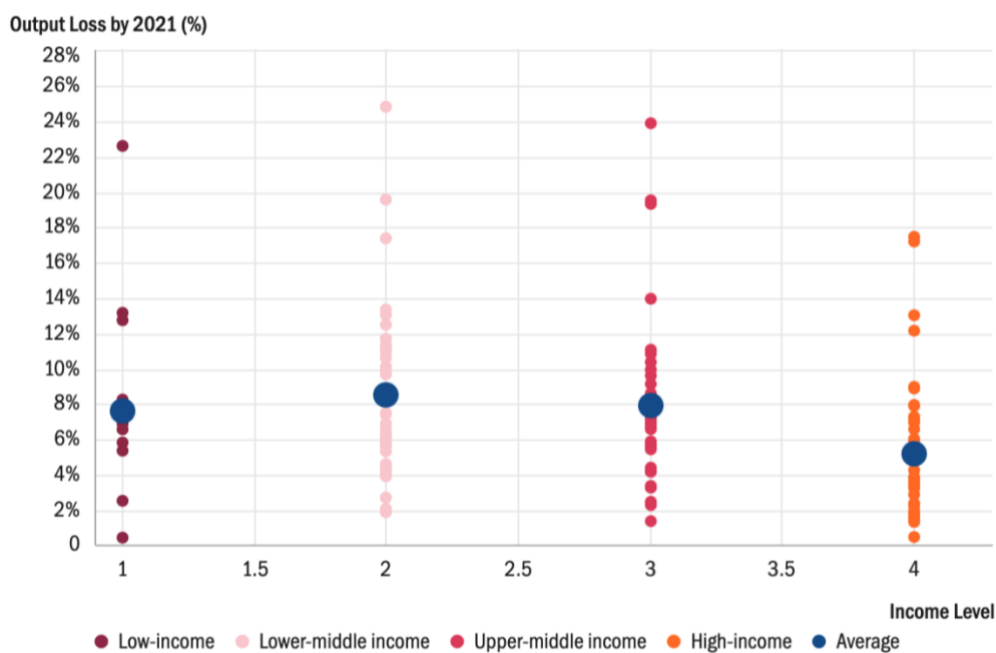


Figure 3 - Output Loss of Countries by Income Level (Andreoni & Lavopa, 2022)

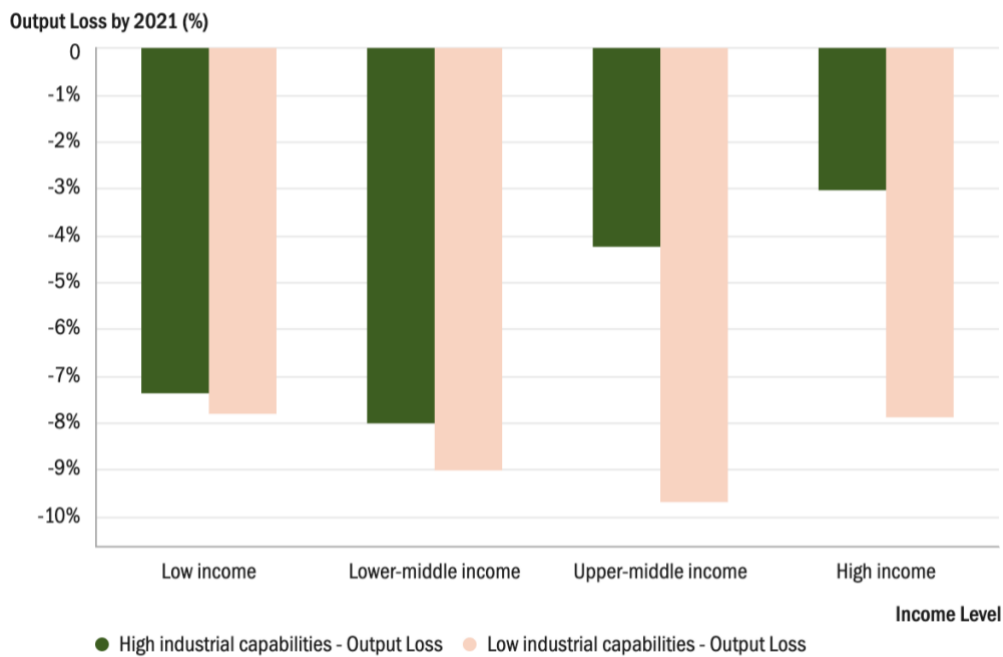


Figure 4 - Output Loss by Industrial Capabilities and Income Level (Andreoni & Lavopa, 2022)

The decrease in overall consumption of non-essential goods decreased as more people decided to save money during the pandemic (Xiong et al., 2021). This along with the ongoing health problems faced by the industry led to a decrease in overall output as demand for goods was not as high as before and the efficiency of factories was lower due a lack of workers (Harker, 2022). This clearly highlights the significance of the effect that the manufacturing industry has on certain socioeconomic conditions.

2.4 Supply Chain Disruptions

Disruption in the supply chain is referred to as a risk imposed by outside drivers, such as natural disasters, diseases, transport delays, material shortages, miscommunications, war, terrorism, labor disputes, and supplier bankruptcy (Chopra & Meindl, 2016, Wu et al., 2007). Global supply chains are susceptible to higher amounts of risks than localized supply chains. Globalization, while having many advantages, poses as a threat for many supply chains. Any delay or disruption in one stage of the supply chain has the ability to impede the operations of the whole supply chain. The reason for this is because the stages are all interdependent on one another (Wu et al., 2007).

A flexible supply chain is less susceptible to supply chain risks. Flexibility tends to come with a higher cost. However, it allows the supply chain to adjust to consumer demand and market conditions (Chopra & Meindl, 2016). Since 2019, international supply chains have faced various major supply chain disruptions. Among these are the container shortage, the Suez Canal obstruction, and arguably the most impactful disruption, the COVID-19 pandemic.

2.4.1 Covid-19

In late 2019, the first cases of the coronavirus were discovered in Wuhan, China. Soon after, in early 2020 countries around the world started setting lockdown regulations, restricting the operations of many businesses (Harapko, 2023). In March 2020 it was declared a global pandemic by the World Health Organization (World Health Organization, 2022). By April 4th, 2021, more than a million cases were reported worldwide, increasing the number of cases by a factor of 10 in less than a month (Centers for Disease Control and Prevention, 2022). Lockdown measures imposed by governments in an attempt to curb the spread of the virus were detrimental to economies all around the world as many businesses were forced to pause their operations (Le & Lam, 2021). The pandemic forced many businesses to temporarily halt or restrict their operations. Industries that relied heavily on factories and manufacturers were impacted the most as lockdown regulations demanded harsh changes in the working environment, making overall production less efficient (Kazancoglu et al., 2022).

Not only is the pandemic a health issue, but it also poses as a socioeconomic issue as it directly affects the global economy leading to changes in lifestyles for many individuals (Le & Lam, 2021). As the virus spread throughout the world, companies had to explore new ways of conducting business to comply with government regulations. For many, it meant working from home, and for some it meant finding a new profession as not all jobs can be carried out away

from the worksite (Bloom, 2020). Bloom’s (2020) study revealed that individuals with higher salaries were more likely to be able to work from home while individuals with lower income and low skilled jobs were more constrained due to their economic status. Additionally, another study published before the spread of the pandemic claimed that working from home made communication between coworkers harder, therefore decreasing productivity (Lippe & Lippényi, 2019). However, this was due to the lack of digital infrastructure as home office wasn’t considered conventional before. As digital communications software evolved, employees were able to work from home more efficiently. Some companies have even seen an increase in productivity as well as various positive externalities of the pandemic for workers, such as saving time commuting to and from work (Prodoscore, 2020; Apollo Technical, 2021).

As presented in Figure 5, a study by Ernst & Young LLP surveying supply chain executives of various companies in different industries showed that over 70% of companies were negatively affected by the pandemic, while 18% weren’t affected much, and 11% were positively affected (Harapko, 2023). Of the companies negatively affected, companies in the automotive and industrial manufacturing sector reported the highest levels of negative impacts from the pandemic. Almost 50% of companies reported changes in workforce structures (Harapko, 2023).

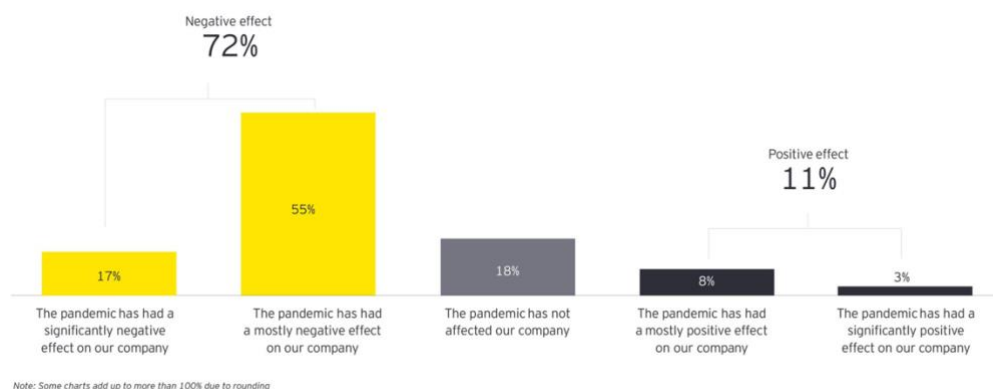


Figure 5 - Perceived Effects on Companies by Supply Chain Executives (Harapko, 2023)

By the end of 2022, a total of around 665 million cases were documented. Towards the end of 2021 and beginning of 2022, there was a sharp increase in the daily cases of the coronavirus. This number peaked at around 3.8 million cases by the middle of January (Worldometer, 2023a). The trends of daily cases can be observed in Figure 6. As of March 2023, almost 6.9 million deaths were caused by the virus (World Health Organization, 2023).

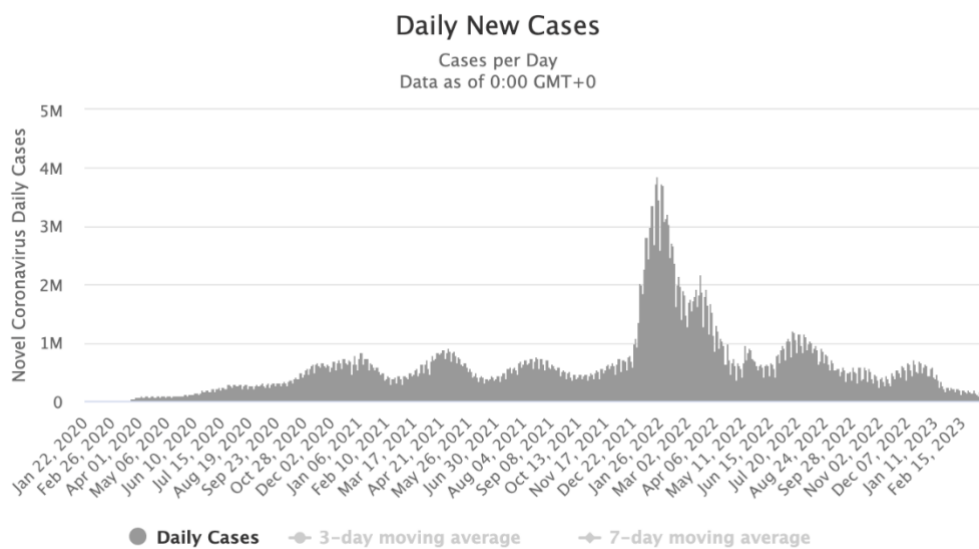


Figure 6 - Daily Number of Cases of the Coronavirus (Worldometer, 2023a)

2.4.2 Container Shortage

The container shortage crisis was a result of the pandemic, which created problems such as “port closures and congestions, labor shortages, difficulties with capacity utilization, as well as a lack of new shipping containers.” (Placek, 2022). The price of transporting goods increased dramatically as a result of the container scarcity, with some reports claiming a 300% increase in shipping expenses (Asthana, 2022). Small and medium-sized firms who depend on international trade to import or export items found this increase in transportation costs to be especially challenging (Goodman, 2022). A backlog of orders and a lack of items in some marketplaces resulted from the shortage's impact on delivery times (Duhalde, 2022). This had repercussions across the entire supply chain, hurting sectors including manufacturing and

retail. The lack of containers also caused changes in trade patterns, with some businesses choosing to use air freight or other forms of transportation rather than pay the high prices associated with shipping by sea. As a result, there was a greater demand for air freight, which raised prices further due to a lack of available cargo space (International Air Transport Association, 2020).

Pre-pandemic freight rates averaged between \$1,200 to \$1,700 depending on the month. Rates started rising around April 2020, and then peaking at more than \$10,000 in September 2021. Rates slowly fell until they landed around \$2,000 by November 2022 (Placek, 2022). The trend of freight rates can be found in Figure 7.

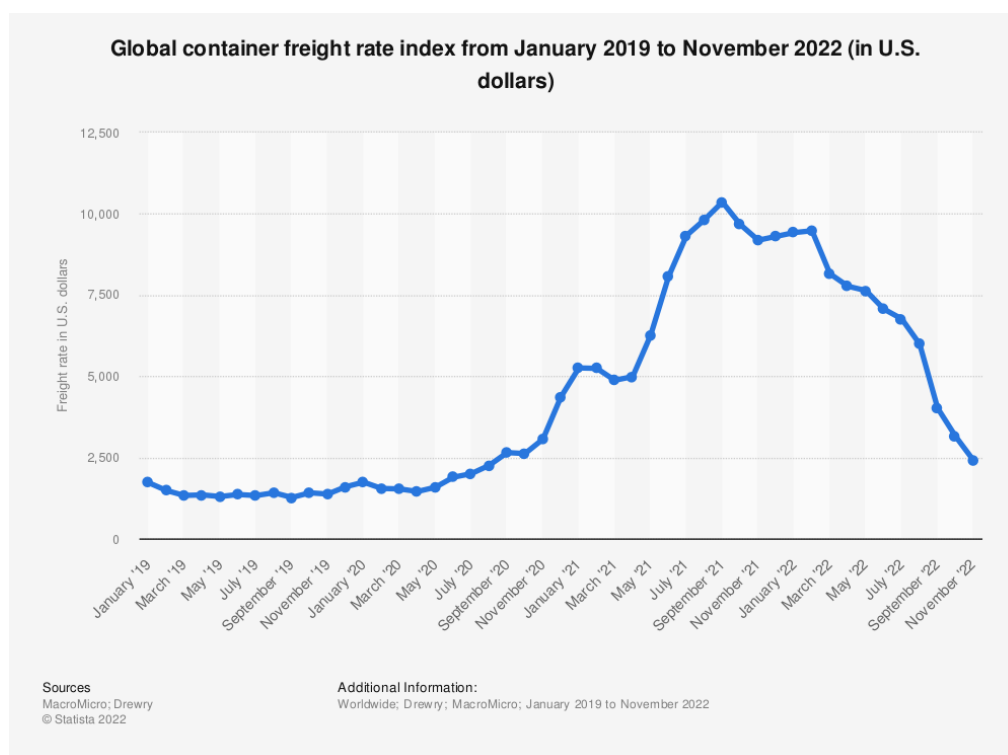


Figure 7 - Global Freight Rates (Placek, 2022)

Trade imbalances occurred as countries were experiencing and dealing with the pandemic in different ways. While some countries were in lockdown, restricting their country's ability to manufacture goods, others may have still been operating as usual. This translates over to international ports as well, as some experienced delays or closures, creating a shortage in containers. The

shortage in containers ultimately led to the prices for container freights to skyrocket (Attinasi et al., 2021).

2.5 The Manufacturing Industry in Vietnam

Vietnam has been a growing manufacturing nation since the introduction of *Doi Moi* in 1986 (Nguyen et al., 2018). Many large companies choose to relocate their production to Vietnam due to the many benefits offered by the nation. Vietnam has a large and growing labor pool with more than 50% of the population employed. Vietnam also has a large and educated labor force, incentivizing foreign companies to invest there. Due to the size and skill of the workforce in Vietnam, many businesses have seen the country's potential. Additionally, labor costs in Vietnam are low enough to compensate for the shipping costs (Asia Perspective, 2022). Another reason for the influx in foreign firms is the China-U.S. trade war, putting various tariffs on products manufactured in China (Samuel & Nguyen, 2022). Vietnam is also part of multiple free trade agreements making it attractive to companies that are looking to cut costs on import and export taxes (Asia Perspective, 2022).

2.5.1 Vietnam's Key Economic Regions

Vietnam has many industrial clusters, which attracts businesses looking to move more of their manufacturing there (Source of Asia, 2022). Almost 70% of the 6,000 factories in the country are in or close to Hanoi and Ho Chi Minh City (C. Nguyen, 2022). There are three main key economic regions (KERs) which the manufacturing industry is mostly made out of. Each KER is home to one or more sectors of manufacturing (C. Nguyen, 2022). The three KERs are the Northern, Central, Southern region.

The Northern region consists of "Hanoi, Hai Phong, Quang Ninh, Vinh Phuc, Bac Ninh, Hai Duong, and Hung Yen" (Asia Perspective, 2023; C. Nguyen, 2022). Industries such as "heavy manufacturing, oil and gas, and hi-tech industries such as automobile manufacturing" as well as electronics manufacturing are

usually found in the Northern KER (C. Nguyen, 2022). This region also attracts a lot of firms due to its proximity to China. To benefit from Vietnam's lower labor costs while staying close to Chinese suppliers, many businesses have moved manufacturing there (Asia Perspective, 2023). The Northern KER has well developed infrastructure and transportation networks, making the transportation of goods more efficient. Additionally, the growth in heavy industries such as the automotive and electronics industry is largely due to China-plus-one expansion programs. The cluster of factories and workers established as a result of this make the zone attractive to foreign investors (Asia Perspective, 2023).

For ocean-based economy and agriculture, the Central region, which includes Da Nang, Thua Thien-Hue, Quang Nam, Quang Ngai, and Binh Dinh, is appealing to foreign direct investment. Furthermore, the region also includes “textiles, building materials, and paper and forest products” (Asia Perspective, 2023). Compared to the North and South, this region is more heavily reliant on the food, beverage, and agricultural feed industry (C. Nguyen, 2022).

In contrast, the Southern region of Vietnam offers a greater variety of industries and services than the Northern region. Binh Duong, Tay Ninh, Long An, Dong Nai, Ba Ria, Vung Tau, and Ho Chi Minh City are the main KERs in the South. One of the largest garment producers in the nation is located in Ho Chi Minh City, which is where the garment and textile industries are concentrated (C. Nguyen, 2022). This region is regarded as the most versatile of the three and is attractive to investment as it has a more conducive environment for small and medium-sized enterprises (Asia Perspective, 2023). There is also a larger congregation of pharmaceuticals and luxury goods manufacturing in the South. Many firms that have adopted the China-plus-one strategy tend to shy away from the Southern regions as any time-sensitive supply chains may suffer due to the lack of proximity to China (Asia Perspective, 2023).

2.5.2 Growth of the Manufacturing Industry

In the last four decades, the manufacturing industry has experienced substantial growth. The rate of growth mostly stayed between 10% and 15% with dips around 1989, 2008, with the latest one being in 2020 (World Bank, n.d.). The dip in 1989 can be accredited to the dissolution of the Soviet Union, which left Vietnam largely isolated. However, the nation was able to slowly recover in 1992 as a new constitution allowed for companies to operate with less governmental regulation (Buttinger et al., 2023). In 2008, the effects of the global financial crisis could be felt in Vietnam through a stunt in growth in most sectors (Pham, 2009). In late 2019, a novel Coronavirus was discovered which later on developed into a global pandemic (Harapko, 2023). As of now, the economy is slowly recovering as businesses have started resuming their operations. The growth trends of the manufacturing industry can be followed in Figure 8.



Figure 8 - Percentage Growth of the Manufacturing Industry in Vietnam (Created by the author using information provided by: World Bank, n.d.)

As presented by the World Bank (n.d.) in Figure 9, the manufacturing industry has transformed into a more prevalent part of the Vietnamese economy. The data provided by the World Bank, unfortunately, only included entries after

2005. Since 2005, however, the industry’s output has risen from around 19% to almost 25% of the nation’s total GDP (World Bank, n.d.).

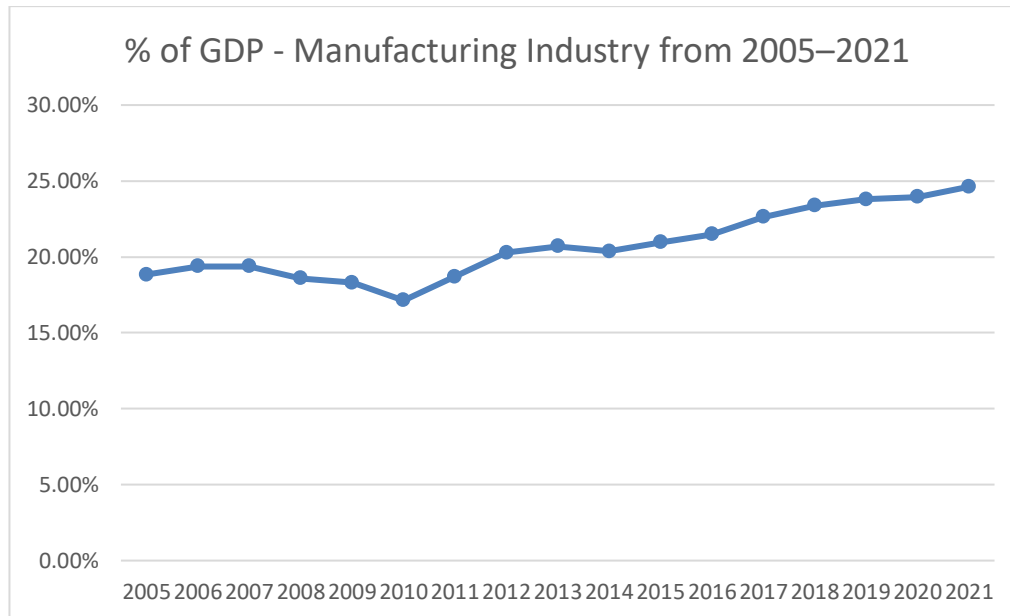


Figure 9 - The Manufacturing Industry as a Percentage of the GDP (Created by the author using information provided by: World Bank, n.d.)

The increase of globalization to Vietnam after *Doi Moi* led the population away from the previously more ascetic lifestyle to a more consumerist one (Nguyen et al., 2018). Among the various industries in Vietnam, electronics production has become a prominent industry with it making up 30% of Vietnam’s total export value now compared to 20 years ago where it was only 5% (Läng, 2022). Another growing industry in Vietnam in recent years has been the garments and textile industry, with an average growth rate of 17% annually, contributing up to 16% of the nation’s total GDP (Nguyen, 2020). Major growth drivers of the manufacturing sector in Vietnam are the various FTAs making the market more accessible for foreign investors and companies. These agreements also allow Vietnam to access other foreign markets, enabling the increase of exports to more places (Nguyen, 2020). The large congregation of FDI firms has also led to positive spillovers that encouraged innovation and growth of domestic producers (Nguyen, 2020). The importance of the textile and garments industry has also been recognized by the government, both at a

national and local level. This is evident through the funding of supporting industries, which provide manufacturing plants with intermediate products, by the Ministry of Trade and Finance of Vietnam (H. L. V. Nguyen, 2022). The textile industry is also one of the leading job creators in Vietnam. In 2016, 12% of the nation's labor force across all sectors was comprised of laborers in the textile and garments industry. The labor force of the textile and garment industry also accounted for 25% of the total labor force within the manufacturing and processing industry (Supporting Industry of Vietnam, 2021). The Statistical Yearbook of 2021 published by the General Statistics Office of Vietnam also revealed that the manufacturing industry accounted for 22.8% of the total workforce of the country (General Statistics Office of Vietnam, 2022, p. 151). This clearly highlights the growing importance of the manufacturing industry and shows the effects that disruptions may have on the socioeconomic wellbeing of Vietnam. Furthermore, it reinforces the incentive to build a more resilient industry in order to be better positioned should another crisis arise.

2.6 Socioeconomic Impacts of COVID-19

The pandemic has not only had significant impacts on the Vietnamese economy, but also on the lives of the people. The country faced complications with healthcare, unemployment, and overall labor shortages in various industries. The strict lockdown rules implemented by the government caused a reduction in work for many laborers, leading to lower wages hence lowering the standards of living (World Bank, 2022).

Vietnam is among the most susceptible nations to COVID-19 as it highly relies on Chinese exports of intermediate products. Vietnam's inability to create its own supply of intermediate products has made the country more dependent on imports, meaning that any external disruptions can stump the nation's growth (Vietnam Credit, 2020).

2.6.1 Healthcare Challenges

Another issue that the country faces is its lack of proper medical infrastructure. Healthcare is for the most part underdeveloped (Tran et al., 2020). Vietnam fared well for the first year of the pandemic due to extensive detecting, testing, contact tracing, and quarantining (Hoang, 2022). To add on to that, the nation also closed its borders in March of 2020 with very little exceptions, requiring up to two weeks of quarantine for anyone entering the country (Vietnam Briefing, 2021). The emergence of the Delta variant of the virus struck the country very hard due to various reasons. Mainly, the Delta variant’s ability to spread much faster, the lack of action by the government by not providing vaccinations and adequate equipment to the healthcare sector, as well as the population density (Hoang, 2022). The trends of the pandemic in Vietnam can be observed in Figure 10 as courtesy of Worldometer (2023b).

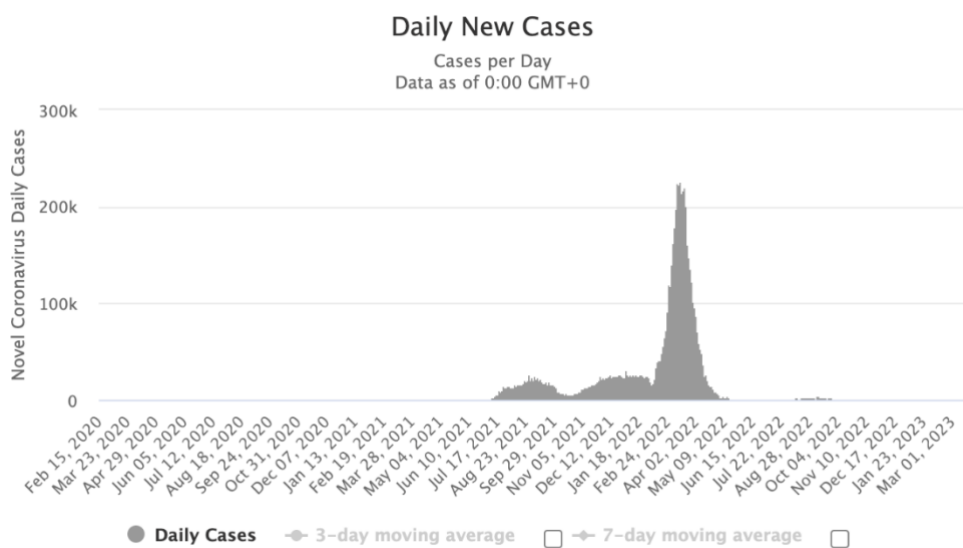


Figure 10 - Daily New Cases in Vietnam (Worldometer, 2023b)

Large numbers of infections in the third and fourth quarter impacted the labor market significantly. As of now, there were more than 11,600,000 confirmed cases and the death toll reached to just above 43,200 (World Health Organization, 2023). 60% of workers experienced negative effects due to the pandemic “which ranged between loss of jobs, reduced hours, temporary

business closures, and reduced pay” (World Bank, 2022). Realizing its mismanagement of the pandemic, the government quickly bought and pushed out vaccines. By the end of March of 2022, and largely due to the people wanting to be vaccinated, around 80% of the population had received full doses of vaccines (Hoang, 2022). The initial shock to the nation, however, left many companies with depleted workforces, leading to decreased productivity. The dip in productivity challenges Vietnam as a global competitor, which in turn may have long term negative outcomes for the nation.

2.6.2 Shifts in Employment

As can be seen in Figure 11, the unemployment rate in Vietnam has risen a lot in recent years (Statista, 2023). In 2020, the unemployment rate was higher than in the previous year. Despite Vietnam not being affected too much by the pandemic domestically, the impacts felt worldwide were reflected onto the country (General Statistics Office of Vietnam, 2021c). Due to the restrictions imposed in Q3 of 2021, the unemployment rate rose to nearly 4%. Additionally, wages were reduced by an average of 15%, with female workers experiencing 1.5 times more of a reduction than their male counterparts (World Bank, 2022). In general, the unemployment rate in 2021 saw an increase in comparison to previous years (Statista, 2023).

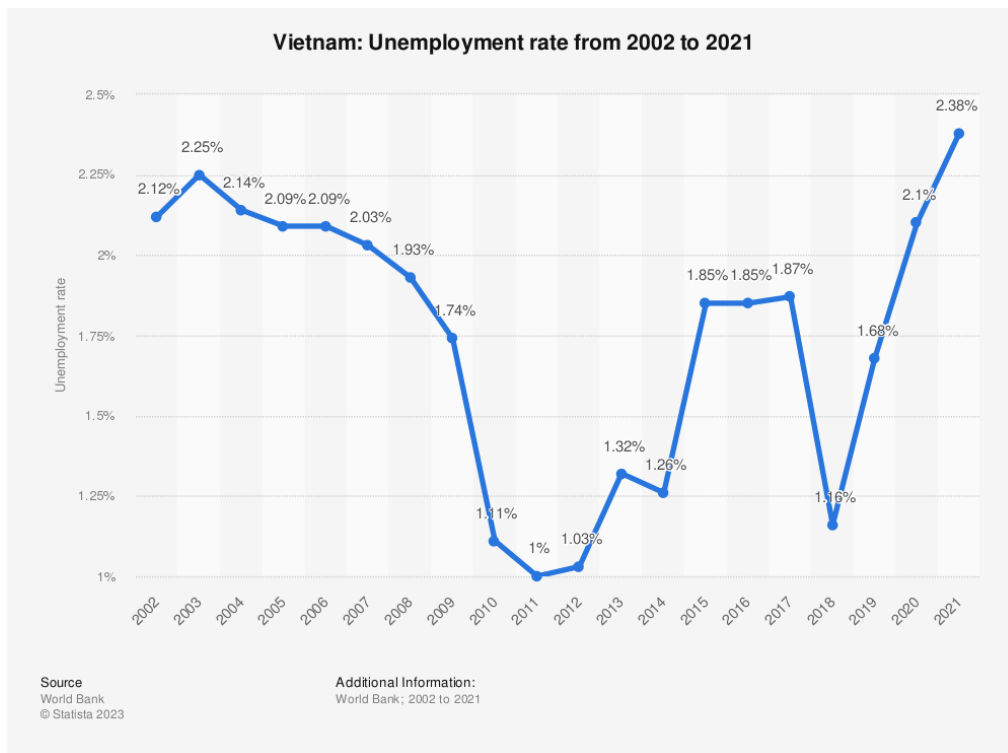


Figure 11 - Unemployment Rate in Vietnam (Statista, 2023)

The employment situation largely recovered in 2022, with dips towards the end of the year as many businesses struggled to uphold a large workforce. The underemployment rate also rose towards the end of 2022 due to difficulties in production (General Statistics Office of Vietnam, 2023).

2.6.3 The Tourism and Travel Industry

International tourism experienced a fall of 78% in 2020 and 97% in 2021 compared to 2019 (General Statistics Office of Vietnam, 2021b, Le & Lam, 2021). This had a significant impact as tourism contributed almost 10% to Vietnam's total GDP as of 2019 (M. N. Nguyen, 2022a). This value has dropped down to 5.3% in 2020 and increased slightly to 6.1% in 2021 (Statista, 2023a).

Due to the intense waves of lockdown experienced in early 2021, the country had to stay closed to international travelers, for the most part (Barnes, 2023). It was estimated that by the end of 2021, 90% to 95% of companies within the tourism industry had to close down or change their core operations (Barnes,

2023). Furthermore, with sanctions on Russia because of the war in Ukraine as well as China's zero-COVID policy, some of Vietnam's main sources of tourists were missing as the country reopened to foreign visitors in March 2022. In 2019, Chinese tourists, alone, made up more than a quarter of all international visitors to the country (Barnes, 2023).

The government and businesses in the tourism industry attempted to combat the drop in international tourism by tailoring their service to domestic tourists. The action may not be enough to grow businesses largely, it has allowed for operations to continue, hence reducing the impact of the pandemic on the sector (General Statistics Office of Vietnam, 2021a). Another positive effect that came from the shift towards domestic tourism is that locations that were previously only affordable for international tourists lowered prices for the arrival of domestic tourists (General Statistics Office of Vietnam, 2021a). However, despite the efforts to promote domestic tourism, the fact was that locals spent less than 50% of what international tourists spend per day (M. N. Nguyen, 2022b, M. N. Nguyen, 2022c). Paired together with the discounts offered by airlines and tourism agencies, local businesses only earned enough to survive, rather than grow. In 2022, Vietnam had more than three million foreign visitors which was an increase of almost 30 times more than the previous year's figure. Even though there was an increase in international tourism, this value was still down 79.9% when comparing to the value in 2019 (General Statistics Office of Vietnam, 2023).

While this study is focused on the manufacturing industry, it is also important to acknowledge other key industries on which the pandemic has had a profound effect. The tourism industry employs a large number of workers in Vietnam, and therefore damages felt by the industry due to the pandemic also translate to socioeconomic damages felt by the people and the nation's economy. The drop in foreign tourism certainly impacted the labor market

which also impacts the manufacturing industry as there will be higher competition between laborers.

2.6.4 The Manufacturing Industry in Vietnam

In 2020, the manufacturing industry experienced an increase in value added by 3.4% compared to 2019. This was mostly due to the country's efficient management of the pandemic. Minimal cases in the country allowed for businesses to operate normally with exception to foreign visitors (General Statistics Office of Vietnam, 2021b). This initial success instilled confidence in both businesses and the government. The value added by the manufacturing industry experienced some fluctuation, but never reached a negative, further highlighting the importance of this particular sector. Up until March of 2021, the industry was still able to expand as the country was, for the most part, untouched by the pandemic. It wasn't until the outbreaks of the Delta variant in March and Omicron variant later in the year that the effects of the pandemic could really be felt (Harker, 2022).

However, using the purchasing manager's index (PMI), Le and Lam (2021) were able to determine a more accurate method to measure how the industry was affected by the pandemic. The PMI is an index that measures current economic trends derived from a survey taken by purchasing managers in companies within the manufacturing and service sectors (Investopedia, 2020). A number less than 50 signifies contraction while a number above 50 signifies economic growth within the company. Exactly 50 implies that the company has experienced no change in either direction (Investopedia, 2020). The Delta variant outbreak in March 2021 saw PMI values drop below 50, signifying a contraction within the industry as perceived by managers and senior executives (Le & Lam, 2021). In general, the manufacturing sector experienced a sharp decline in output and orders (Le & Lam, 2021).

This is further supported by research provided by Harker (2022) sourced by S&P Global. With the outbreak in March, many workers went back to their

hometowns. With the looming threat of another outbreak, many did not want to return to their jobs in the municipal regions, thus causing a labor shortage. Furthermore, sickness also slowed down the output of the industry (Harker, 2022). This trend can be observed in Figure 12.

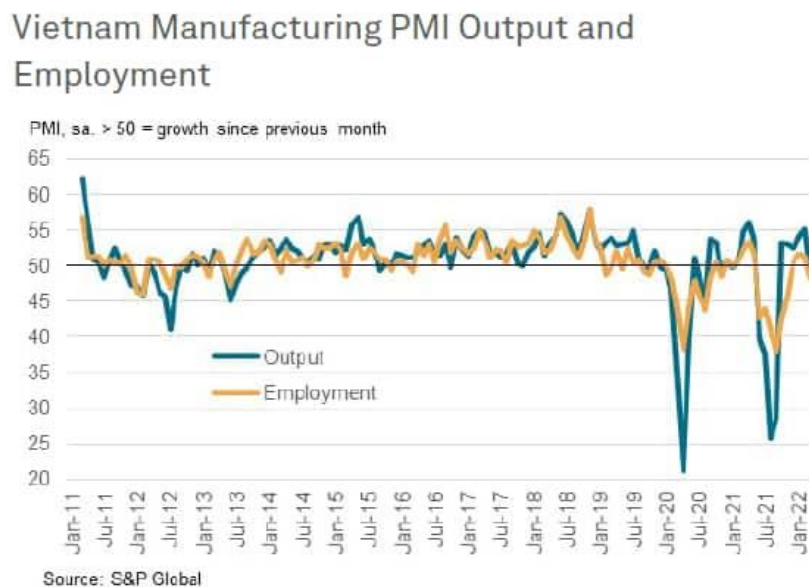


Figure 12 - Output and Employment PMI (Harker, 2022)

3 Methodology

To follow through with answering this study's research questions, it is crucial to define a framework for the research. This section of study will introduce and explain the research method, development of the interview questions, data collection methods, limitations to the study, and research ethics.

3.1 Research Design

This paper employed qualitative and exploratory research methods. This allowed the researcher to gain access to information from experts in the manufacturing industry in Vietnam. A qualitative design does take more time. However, it offers a more in-depth understanding by experts on the subject matter (Kotler & Armstrong, 2018, p. 153). Exploratory research methods

were then used to connect the information collected through the interviews with empirical data to draw a conclusion as to how the manufacturing industry was affected by the pandemic. The result of this study aims to reveal which socioeconomic impacts were experienced throughout the industry.

The study employs a transcendental phenomenological research approach as the study aims to take personal experiences from several individuals to form a bigger picture. Phenomenological studies focus on a certain phenomenon and the experience that various individuals have with the phenomenon (Creswell, 2013, p. 57–59). The reason why the paper is a transcendental phenomenological study is because the author did his best to remove himself personally from the study as to not phrase interview questions in an opinionated manner. This is to avoid potentially influencing the responses of the interviewees. In the context of this paper, the phenomenon would be the socioeconomic impacts of the pandemic on the manufacturing industry in Vietnam, while the interviewees represent the individuals that provide the study with their expert account of the phenomenon. Using this, the author can develop a textural (what someone experiences) and structural description (how someone experiences something) capturing the overall phenomena.

Secondary data presented in the literature review was also utilized to compare and verify information gathered in the interviews. Statistical and secondary data is utilized in an exploratory manner, meaning that no regression analyses were performed as the purpose of the study is not to find out the extent of interaction and correlation between variables.

3.2 Interview Development

This study utilized expert interviews as its primary form of data collection. These interviews were conducted both through online interviews as well as through email. Due to the time difference between where the study is being written (Austria) and where the experts are based (Vietnam), it was difficult for both parties to meet and conduct the interview through a call. Therefore,

for some experts, the interview was conducted through email via asynchronous email exchange.

The interview was structured logically in a way so that questions link to each other, allowing for a rational and smooth connection between questions. Each question is purposefully structured to provide the researcher with information to answer the research questions. Additionally, some questions exist to identify key factors in the research, that may offer an insight as to what the paper should focus on. Finally, the last question intends to find out what the experts think can be done to improve resilience and readiness should another crisis arise. The survey questions are structured so that they do not offer a sense of bias, in order to prevent swaying the interviewees responses. The interviews conducted live were recorded for the sole reason of creating a transcript to be able to better cite the interviews. The selection of the experts was thanks to the author's personal connections. The specific nature of the study also limited the pool of possible interviewees.

3.3 Contact Methods

As previously mentioned, the experts were contacted through email, while interviews were conducted both live (online calls) or through asynchronous email exchange. The reason for this that the research requires specific individuals who are well-versed in the manufacturing industry and have a position within it to offer a first-person account. The study utilized five interviews with experts who either own a company or work in a managerial or executive position in a large manufacturing firm.

Live interviews were beneficial as the interviewee could express their response freely in a vocal manner allowing for a smoother data collection process. Furthermore, live interviews made it possible for the interviewer to ask follow-up questions if relevant. Those who responded to the interview per email have the benefit of hindsight as a bias, meaning that their responses may be more

concise and structured. This could limit the extent of the interviewees' response as it makes asking follow-up or clarifying questions more difficult.

3.4 Limitations to the Study

Due to the specificity of the paper, the scope for interviewees was significantly narrowed. This only allowed for five interviews to take place. A selection bias could exist in this paper as well as experts were selected based on personal connection to the author. This means there was no randomization of the selection process which may have served as a disadvantage to the overall study. While this may be a limiting factor, the information gathered from the interviews was compared to empirical and statistical data collected and presented in the literature review to give a more well-rounded understanding of the topic. The secondary data gathered and presented in the literature review often did not provide information on how the pandemic specifically impacted the manufacturing industry, but it rather provided a more general view of its impact on the entire nation. The data gathered from the interviews allowed the author to bridge the gap in the literature, allowing for a more in-depth comprehension of the topic.

To add on to this, experts who were interviewed through asynchronous email exchange also have the benefit of hindsight. This may have created a bias as their responses could be well thought out as to not reveal information about their firm. Furthermore, it was difficult to ask follow-up questions through email as the nature of the contact method was insufficient in this manner. Additionally, experts who answered through asynchronous email exchange tended to produce shorter and less specific answers than those who participated in live interviews. Experts may also have answered in a way to not have their firm perceived negatively, so there may be a response bias with interviewees

Moreover, one interview had to be translated from Vietnamese to English by the author. This may prove to be a limitation as the translation process may have let way to certain mistakes or misinterpretations.

3.5 Research Ethics

The interviewees' identities and contacts were kept confidential to ensure that any information on their business is kept private from competitors and organizations that may look to profit from it. The interviews that were conducted live were also recorded for the sake of creating a transcript to make the conversation available to the readers as well as to make citing simpler. The interviewees were all informed that the information they provide will only be used for educational and research purposes, and also that recordings will not be shared.

4 Data Analysis and Results

In this section, the data obtained from expert interviews will be introduced and discussed. This aims to put forth the most relevant information to help answer the research questions later on in the discussion section. First, a general background of each expert will be given. This is to understand their roles and how they are considered experts within the industry. Following that, the most discussed socioeconomic factors will be introduced and thoroughly explained how they were significantly impacted by the pandemic. Then, both the response of manufacturers and the Vietnamese government to the situation will be explored. To help answer the second research question, a separate section has been written to examine the impacts that the pandemic had on certain supply chains. Lastly, recommendations from the experts on how the manufacturing industry can improve its resilience to future potential crises will be discussed.

4.1 Background on Experts

The interview process contained five separate interviews with experts. Three of which were conducted live through online meetings and telephone calls. The other two were conducted through asynchronous email exchange where the answers were received through email. Interviewees will be referred to as “Interviewee 1” or “I1”, “Interviewee 2” or “I2”, “Interviewee 3” or “I3”, “Interviewee 4” or “I4”, and “Interviewee 5” or “I5”. This is to ensure their anonymity and protection of their company’s information.

I1 is the head of development at his company. I2 is the owner of his company. I3 is the chief financial officer (CFO) at his company. I4 is the chief strategy officer (CSO) for his company. I5 is the deputy chief executive officer (CEO) of her company. All experts have some form of executive power that would allow them access to information relevant to the interview questions asked. It also signifies that they are competent in their field and have extensive knowledge on how their company and the manufacturing industry was affected by the pandemic.

Due to the vastness of the manufacturing industry, it is important to discuss the different specific fields each expert comes from as this may affect the way were impacted by the pandemic. The numbers of experts per field can be observed in Figure 13. The three experts in the shoes and apparel industry are I1, I4, and I5. I2 owns a company that manufactures furniture, pottery, and accessories. I3 works for a company in the leather and textile industry.

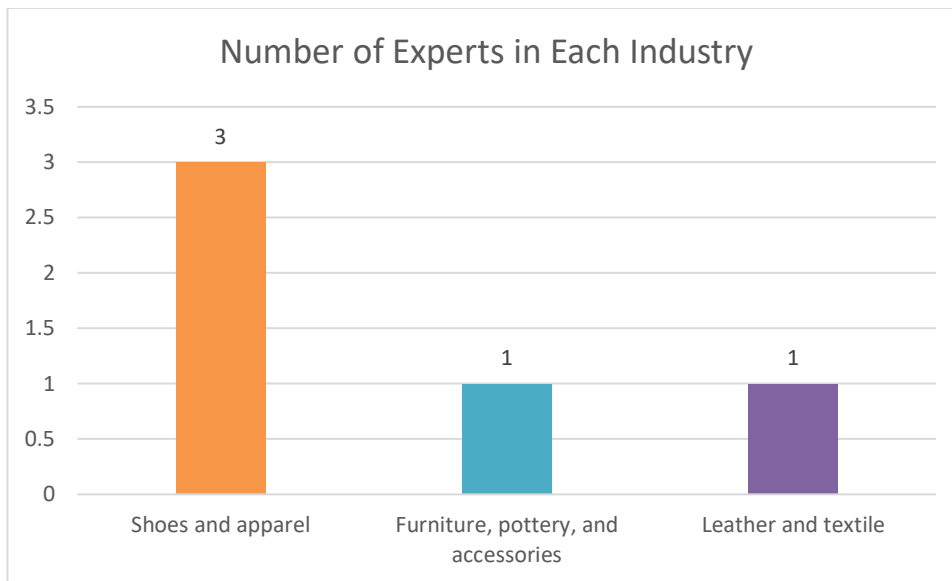


Figure 13 - Number of Experts in Each Industry (by the author of this paper)

Among the experts, three out of five of the experts' companies manufacture in other countries other than Vietnam, while two only produce locally. A list of the countries, and how many companies manufacture in that country can be observed in Figure 14. All the companies of the experts interviewed have manufacturing plants in the Southern KER. This is relevant as lockdowns were experienced locally, meaning that manufacturers in different regions might have experienced effects of the pandemic differently.

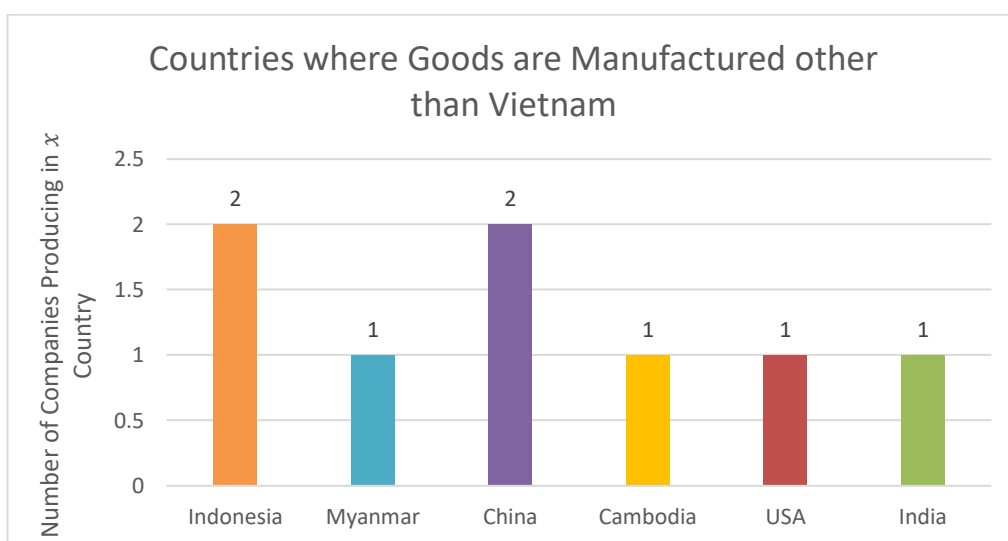


Figure 14 - Number of Companies Manufacturing in Countries other than Vietnam (by the author of this paper)

4.2 Socioeconomic Factors Impacted by the Covid-19 Pandemic

The pandemic had a huge impact on the nation. This section will discuss the main socioeconomic factors that experienced change due to the pandemic. The main socioeconomic factors that were mentioned and deemed significant by the experts were health, employment, and changes in industry productivity and output.

4.2.1 Health

The general consensus amongst the experts was that health and welfare was the least impacted socioeconomic factor. Two of the five experts said that health was not a big issue as the government had quickly obtained vaccines and effectively quarantined infected areas of the city. Two experts did not mention health at all, possibly insinuating that it was not a pressing matter. “Health was impacted the least because there were very effective measures in place especially in Vietnam to really isolate those occasional appearances of Covid” (Interviewee 4). I4 also accredited the low impact on health to the population’s fear of the virus along with various propaganda mechanisms employed by the government. To be more specific, the beginning of the pandemic saw very little impact to health as the country shut its borders to international travel. It was not until later on when more infectious variants of the virus appeared, that Vietnam faced intense periods of lockdown. Despite the intensity of the lockdowns the country faced, some state that it fared better than other nations. This idea was shared by I4, “when we further assume that the following iterations of the virus had higher infection rates and so on, the impact on health retrospectively, was very minimal here in Vietnam” (Interviewee 4). The social responsibility of the Vietnamese people was also stated as one of reasons as to how the nation was able to curb the effects of the virus. In the interview with I4, he stated that, “responsible behavior of the individuals was often ignored [in other countries], because the individual in a Western civilization the center of the universe. Everyone comes first. It's totally

different in Vietnam where it's a collective where everyone really stood in as a part of the community where behavioral requirements were followed a hundred percent and therefore, measures imposed were really effective" (Interviewee 4).

On the other hand, Interviewee 5 expressed that the pandemic did have a drastic effect on health. However, I5's response put more emphasis on the effects on economic development internationally. "The outbreak of Covid-19 not only had a severe impact on health but also negatively affected the economic development in countries worldwide" (Interviewee 5). While having a profound impact on the health of individuals, it was the economic problems that came with the pandemic that impacted the nation the most.

4.2.2 Employment and Financial Stability

A bigger issue that was more widely discussed by the experts was the employment situation as well as the changes in income for workers. As revealed through the interview process, after the initial two weeks of lockdown, the government allowed companies to lay off workers without any grounds. This was presented by I2, when he said, "the government made the announcement after two weeks of the pandemic that companies, at their own discretion, could lay off all their workers without any further grounds" (Interviewee 2). When asked about how the employment rate was protected by the industry, the most common response was that all long-term workers were kept, while workers on short-term contracts were laid off. "For these people with a seniority below two years they are the first ones that basically are out and people with a higher seniority are much better protected" (Interviewee 4). I2, who is the owner of his company, kept all 400 of his employees, as well as offering them bonuses and compensation for being away from their families for so long.

As presented in the literature review, around 60% of all workers in Vietnam experienced some form of job loss, pay cuts, and reduced hours as a result of

the pandemic. The manufacturing industry was no exception to this. I3 expressed that after the government had allowed for companies to lay off workers without compensation, a lot of Asian corporations were happy to let go of their employees to cut costs. “I remember the time when the Taiwanese and the Koreans were celebrating when they could kick out people without paying compensation” (Interviewee 3).

Interviewee 2 also mentioned that a large portion of workers in the manufacturing industry come from the highlands in the central region of Vietnam. In the interview he stated that “employees [who were let go] did not have any food, money, and support so they ran back to the provinces” (Interviewee 2). These workers often come from families that rely on their income to support the family back home. With a lot of these workers unable to find jobs, families that once relied on these workers’ income were suddenly left without any means to pay for essential goods. This notion was also backed up by I3 when he said, “most were unemployed, and they had no money to send to their families in their hometowns”, and “this was not sufficient for the family to, to a certain extent, survive” (Interviewee 3). Despite the rise in unemployment, most interviewees and their companies expressed how they protected their workers. For most this meant, letting employees live on-site as strict lockdown rules dictated that movement to and from work was no longer allowed.

When asked about how the employment rate was protected in Vietnam, I1 mentioned the various measures that manufacturers had to take in order to protect their workforce.

“The employment rate in the manufacturing industry was protected through a range of measures, including wage subsidies and flexible work arrangements. Many manufacturers also took steps to ensure the safety and well-being of their workers during the pandemic as

mentioned above by having them live onsite or paying wages even when the factory was closed and not producing.” (Interviewee 1).

I2 responded in a similar manner, adding that the government failed to do anything when it came to protecting workers.

“The government didn’t provide anything. We had to get fresh vegetables, meat, juices, shower gel, detergent to wash the clothes, razors for people to shave; everything. It’s like you build up your own little city of 400 employees, or people, both male and female, and you need to get everything there. Like normally what they would have at home, you had to have it there. Whether it is a rice cooker, or rice, scissors or a cutting board, anything. The only two choices for companies were to close or to take care of their employees.” (Interviewee 2).

Interviewee 3, who is also the owner and managing director of his company, expressed a level of responsibility as the business owner to take care of his workers. He paid workers bonuses and extra salaries to support them and their families.

“We didn’t release one single person. We paid allowance to people on a monthly basis to people who could work. For people who couldn’t because their district or ward was locked down by the government, they received a support allowance because they couldn’t make overtime and stuff. We even paid company bonus, so a 13th or even a 14th salary to support them.” (Interviewee 3).

Interviewee 4 brought up an interesting point, where he pointed out that international firms tended to have a higher level of corporate social responsibility and protected their workers, while Vietnamese companies were observed to have let go of their workers.

“I know there are differences often between international, and local, enterprises. I think Vietnamese run operations were at times more rigorous and less sustainable than internationally owned enterprises, but this is only what I can tell you from the word of mouth here. We have only worked with international enterprises. The level of social responsibility was very high and also a very high level of protecting their own workforce in these times.” (Interviewee 4).

Interviewee 5 did not provide an answer when asked about how the industry protected the employment rate, nor did she mention anything about rising unemployment.

Employment and financial stability of workers in the manufacturing industry were greatly impacted. Many manufacturers were faced with the decision to either risk a great loss for their firm or lay off a large number of their workforce.

4.2.3 Output and Industry Productivity

Overall output for the industry was negatively impacted “due to a range of factors, such as supply chain disruptions, labor shortages, and reduced demand for goods” (Interviewee 1). Additionally, most workers were not able to commute between home and their place of work as a result of strict lockdown regulations. In another interview, I2 explained that productivity was not necessarily the issue, rather it was the sharp drop in demand that led to a decrease in overall revenue. Factory output was not greatly affected as employees lived on site and were able to work every day, but it was finding shipping routes and customers willing to buy products that were the main challenges.

“Throughout, we had no shortcomings of raw materials, so when we opened the factory gates, the products were actually stacking all the way up to the roof.” (Interviewee 2).

I3 provided a similar answer supporting the claim above:

“So, if you look at efficiency in terms of output per man hour then yes it went down dramatically, but simply because there were no orders.”
(Interviewee 3).

Furthermore, I2 also expressed that logistics was largely slowed down due to organizational problems within regional governments that made it very difficult for vehicles to move from region to region.

“Every province had its own regulations so the drivers for a normal trip where they take 30 minutes would be three to four hours because they had to stop at all the intersections and the provincial borders to show [their] documents and if anything was not compliant, they would be sent back. Productivity was more affected on the logistics side, rather than the actual production side.” (Interviewee 2).

I4 added that logistics, as a system, was already a problem-ridden field even before the pandemic. Disruptions such as the blockage of the Suez Canal and container shortages creating large fluctuations in freight prices had already plagued logistical systems globally. As such, the pandemic simply added problems to an already faulty system.

“The shipping industry and logistics in general, was obviously evenly affected by the pandemic, but as I said, you need to put a different kind of storyline over the entire logistics area because logistics was already impacted prior to the pandemic with some very serious trends in dynamics. It was starting already prior to the pandemic with container shortages, here in Asia which made transportation prices spike to an absolute premium which was 5, 6, 7 times, above the normal shipping prices of the years before. The accident in the Suez Canal also had an impact on the global shipping industry with, a lot of delays, a lot of messed up schedules at key container ports in the world. So, the logistics had a different set of challenges already prior to the pandemic

and, of course, the pandemic was increasing the effect for the shipping industry because obviously you had similar things like lockdowns in certain areas, lockdowns in certain countries.” (Interviewee 4).

On the contrary, I3 did not face a lot of problems in terms of logistics due to the propinquity of their operations. To add on, I3’s company works closely with larger firms, which tend to have influence over shipping companies, giving them priority on freighters.

“We did not face that big of problems since our market is 50% in Vietnam and 50% in Southeast Asia. So, we still had containers going there and it wasn’t a big issue. We got a lot of raw materials from the U.S., and this was around the time when ports weren’t heavily congested, but we also deal with very big suppliers like Heinz, JBS and National Beef, and they have very strong [influence] on the logistics companies. This let them push through to get containers. If you deal with smaller suppliers, yes you would have faced a massive issue, if you deal with the big players, they have more power to get containers.” (Interviewee 3).

I4 also gave credit to government-introduced regulations as one of the factors that aided productivity in factories. This included the extensive decontamination of machinery and vehicles, guaranteeing a clean and safe environment where employees can still work at maximum productivity.

“On the productivity side, I agree due to the let’s say effective measures. Where also government implemented, let’s say lockdown situations, particularly also in office environments or where there was a high density of people in the city. They tried, with effective measures and there was a protocol that, for instance, manufacturing facilities needed to follow. That started with disinfecting cars that were entering a premise. That was temperature measurements of every person

entering the premise and so on. It was effective measures for people working on a production line with giving a minimum distance, wearing masks, in canteens with separators between the individual food stalls and the tables where people were sitting just to name a few. There were very effective measures where they were able to maintain manufacturing environments to continue operating.” (Interviewee 4).

Another factor that contributed to the fall in productivity and capacity were supply chain disruptions in terms of obtaining raw materials from foreign countries. Without raw materials, it became difficult for manufacturers to produce certain products.

“Vietnam relies on imports for many raw materials and production inputs. Therefore, disruptions in the supply chain and higher import prices have affected production costs and prolonged waiting times for synchronized production.” (Interviewee 5).

Moreover, the health and psychological effects the pandemic had created a labor shortage in the country, decreasing output further.

“The psychological impact of the pandemic on workers' well-being and concerns about contracting the disease and not being able to work have resulted in a shortage of skilled labor. This, in turn, has led to extended production times and reduced labor productivity. Moreover, the costs of caring for workers, such as COVID testing and treatment, have increased.” (Interviewee 5).

The general consensus among the experts is that production in terms of output per man hour was either negatively affected by the pandemic, or not affected at all. However, all experts concluded that revenue was significantly impacted as even if factories were producing at maximum output capacity, the reduction in orders led to a fall in cashflow. Furthermore, health and safety regulations

introduced during lockdown, such as Covid testing employees and decontaminating equipment became a high cost for a lot of manufacturers.

The main problems created or worsened by the pandemic were supply chain disruptions, labor shortages, reduced orders, and health of workers. Despite these challenges, the manufacturing industry was still able to operate to an extent due to government regulations implemented with the intentions to keep a safe working environment. This allowed the industry to fare better than other fields, such as tourism, where long periods of border closure removed international visitors as a revenue stream.

4.2.4 Competitiveness of the Manufacturing Industry

The main response from experts when asked about how the pandemic affected Vietnam as an international competitor for manufacturing was that the pandemic had a positive effect, or no effect at all. The only interviewee who thought that competitiveness was negatively affected was I5. She mentioned that the lack of demand for goods internationally as well as domestically led to an overall net negative for a lot of firms. Additionally, the ramping costs and lockdown regulations made it difficult for businesses to operate efficiently. Not only that, the spread of the virus, which left many workers sick, also contributed to a fall in competitiveness.

“Domestic businesses have faced numerous challenges in maintaining production activities amidst rapidly increasing production costs. Isolation requirements and social distancing measures have made it difficult for businesses to access customers, resulting in a lack of market demand for their products.” (Interviewee 5).

On the other hand, the other experts seemed to agree that the extended lockdown in China due to their Zero-COVID policy led to a lot of diversifications of supply chains towards Vietnam. This notion was supported in the interview with I1.

“I believe what helped Vietnam the most was China's strict no covid policy which meant that people could not travel there for such a long time, which made it much easier to do business in Vietnam. Hence a lot of brands shifted their production to Vietnam.” (Interviewee 1).

However, due to this influx in orders, Vietnam found itself overloaded by demand. The nation does not have nearly the same amount of production capacity as China does, therefore it was not able to meet the demand set upon it. On the other hand, the rapid increase in demand had incentivized companies to rehire the workforce that was laid off previously, in an attempt to increase production capacity. This topic was further explained by I2. “So, overall, Vietnam was overloaded by demand, which led to companies hiring more people that had all been laid off” (Interviewee 2).

I3 attributed Vietnam’s ability to produce during the lockdown to the quick reaction of the government. As soon as Vietnam was hit with the pandemic, the government wasted no time buying vaccines from anyone who would sell them. “You can see them (the government) as action driven... They got vaccines left and right, from every country and tried to distribute them as efficient as possible.” (Interviewee 3). Due to the effectiveness of government regulations, as well as their quick action, manufacturers were able to keep their production facilities running.

“Our company in Tay Ninh, for example, was running through the whole pandemic, we didn’t have one day down. There was not one day where we did not produce during the whole pandemic. And I think there are not many countries that can compete with this.” (Interviewee 3).

This was further backed by I4.

“I believe Vietnam has rather gained reputation as a very reliable sourcing country, already over many years, that also handled the pandemic exceptionally well.” (Interviewee 4).

According to the majority of the experts, Vietnam built a reputation as an international competitor as it proved itself to be fast to act in the face of crises. This is not to say that some regulations implemented by the government would not border on a breach of human rights. I4 discussed the moral implications of the lockdown regulations. He mentioned how the same mandates, should they have been implemented in Europe, would be met with harsh criticism and backlash.

“It's totally different in Vietnam where it's a collective where everyone really stood in as a part of the community where behavioral requirements were followed a hundred percent and therefore, measures imposed were really effective. I mean, of course, if you go into details and if you live on the ground at times when they were going around with their military police vehicles in the evening picking up people out of their apartments that have been in contact with someone who probably was in contact with someone who was infected. Then we are coming to the very borderlines of how this has been handled. But this is, of course, not in the public knowledge.” (Interviewee 4).

Despite the challenges that the nation faced, strict laws as well as rapid action from the government proved to be an efficient strategy to keep companies operating despite the pandemic. While many companies struggled with the increased costs due to the newly implemented lockdown regulations as well as the dip in demand, the manufacturing industry was able to stay afloat due to an increase in foreign demand for production.

4.3 Impact of the Covid-19 Pandemic on Supply Chains in the Manufacturing Industry

The main supply chain disruptions experienced by manufacturers during the pandemic were container shortages and port congestions, changing ordering

patterns from retailers, logistical problems within the country due to lockdowns, as well as a lack of raw materials.

4.3.1 Container Shortage and Port Congestions

The international freighting services experienced disruptions even before the pandemic started with the Evergreen vessel getting stuck in the Suez Canal. Further port congestions in the U.S.A. and in Europe furthered the shortage of container ships as they would have to wait for their turn to unload. At times there were delays up to 40 days, which created huge issues for the international shipping industry.

“If you imagine, it takes two days to load and unload [containers off the vessels], even if it were one day, there would be a 40-day delay for a vessel and goods arriving. That has a huge impact on the finances, on the logistical part of delivery supply chain.” (Interviewee 2).

The container shortage ultimately created a lot of delays for the industry. Furthermore, another problem that arose from the shortages in containers was the increase in prices for containers. This had a significant impact on brands as their profit margins decreased.

“The cost of containers also shot up 5 times during the pandemic, which meant that it was much more costly to ship goods around the world which led to brands losing a lot of margins on their product.” (Interviewee 1).

4.3.2 Difficulties with Supply Chain Partners

The pandemic also created a lot of confusion between partners in the supply chains. Customers of manufacturers would change ordering patterns sporadically making it difficult for manufacturers to supply the right products at the right time. “Everything happened very radically, our customers cancelled orders that were produced already, they postponed shipments up to one year”

(Interviewee 2). Manufacturers often were not treated as equal partners in the supply chain. Their customers would adjust and cancel orders at a whim without any prior warning, leaving manufacturers with excess inventory or large orders at times. “We as a manufacturer are not treated as an equal partner so they rather than tell us what they are going to do, they just do it, and we have to fit to them” (Interviewee 2). This notion was further expanded upon by I3, in which he mentions how a lack in communication between supply chain partners increased the bullwhip effect, in which fluctuations in retail demand created larger fluctuations further back in the supply chain.

“The unfortunate part is the less communication you have with your partners, the higher the bullwhip effect will be. Last year, all of a sudden, orders went up like crazy and people couldn’t get enough materials out of Asia and now the inventories are full so now, they pulled the handbrake again.” (Interviewee 3).

4.3.3 Logistic Problems within Vietnam

Regional lockdowns and the miscommunication between provinces made the transportation of goods within the country extremely slow. Despite factories operating at almost full capacity, overall productivity took a hit due to delays in shipping. Each province had their own regulations to counter the pandemic, and therefore checkpoints were set up at regional borders. Officials checked to make sure that drivers had the correct documents before they would let the container trucks through. “Every province had its own regulations so the drivers for a normal trip where they take 30 minutes would be three to four hours” (Interviewee 2).

4.3.4 Lack of Raw Materials

Many manufacturers rely on imports of raw materials from China, Taiwan, and other countries all over the world. The number of companies that rely on other countries for imports can be found in Figure 15. Lockdowns were experienced

at different times everywhere, meaning that places in lockdown had decreased productivity in shipping raw materials when Vietnam was still producing normally and vice versa. For example, much of the production of shipping materials came from China, so during China’s period of intense lockdown, many Vietnamese firms ran out of those materials. “Since there were no imports from China to Vietnam, people had only so much stock before they ran out.” (Interviewee 2). A further problem experienced as a result of the lockdowns in China, was that many companies looked to diversify production to Vietnam, a burden which the nation could not shoulder due to its lack in capacity compared to a manufacturing giant such as China.

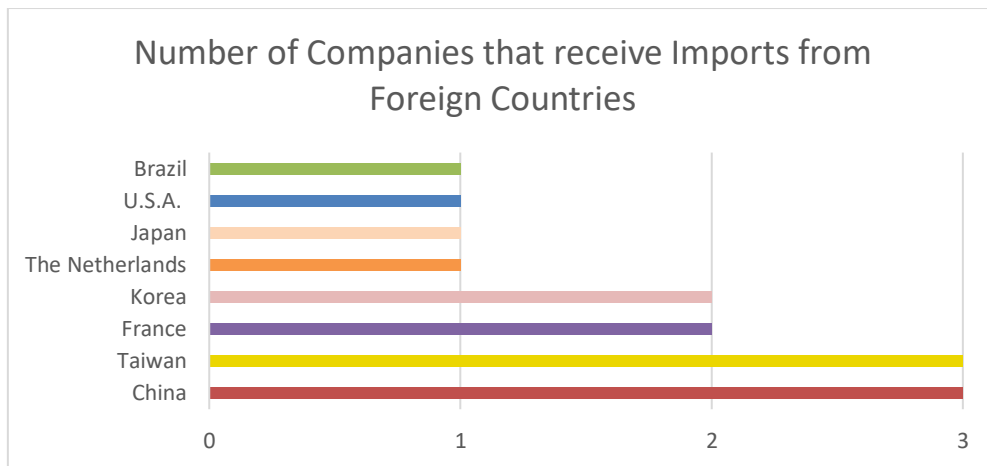


Figure 15 - Imports from Foreign Countries

4.4 Reaction to the Pandemic

Due to the contagious nature of the virus, the situation instilled by the pandemic was changing every day. This called for quick reactions from both manufacturers and the government. Whether it was locking down certain areas due to high infection rates or adjusting ordering patterns from the side of manufacturers, the changing situation required almost daily analysis and decision making.

4.4.1 Government's Response

When it came to the government's response, the answers from the experts varied the most out of all the other answers provided to other questions. Interviewees 1 and 5 mentioned that the government had provided employees with financial and social aid.

“Governments across Asia, but especially in Vietnam have implemented a range of measures to support businesses during the pandemic. These measures include financial support in the form of loans and grants, tax breaks, and subsidies for wages and training.” (Interviewee 1)

I5 added to this, saying that the government had supported workers and businesses by allowing later insurance payments, lowering tax and interest rates, prioritizing vaccinations for firms, providing workers with meals, and giving allowances to those who were unemployed. I4 also expressed that there was support from the government, but it was short-lived as the government did not have the resources at times to provide everyone with aid.

“In the second year it was affected, but also in the second year, the government also stalled any kind of support programs for local people in any way. There was an initial support program for those who were most in need, for businesses here in Vietnam.” (Interviewee 4).

On the contrary, interviewees 2 and 3 stated that there was little to no government aid for businesses and employees alike. The only form of financial support that the government had provided was allowing firms to lay off employees without any grounds. Doing so would help companies cut costs, and many firms looking for a short-term solution were quick to let go of their employees.

“Actually, there was no support from the government. They thought that they would support the companies by allowing them to lay off their

employees after the two weeks [of lockdown] without paying them any salaries.” (Interviewee 2).

I3 acknowledged the support systems mentioned by I5, however these aid programs were not in place for a long time, and more often than not, were not sufficient.

“You got a little bit here and there. Social insurance got a rebate. ... Nothing compared to America or Europe, not even close. They had a one-off allowance for the workers to support them with housing.” (Interviewee 3).

Despite the little support for workers and companies, the experts did come to the consensus that the government’s reaction to the pandemic was effective and helped the nation get through the pandemic. The government’s ability to quickly supply the nation with vaccines as well as to implement new mandates locally depending on the situation in each region helped Vietnam’s industries to get back on their feet. “The government saw that they didn’t have enough vaccines, so they asked every country in the world for vaccines” (Interviewee 3). A problem that localizing lockdown regulations posed to manufacturers, while effective in containing the virus, was that they caused massive supply chain disruptions, as there would be checkpoints between regions making transportation of goods and materials very slow.

“One of the key concerns was that every province did their own thing. The government gave out directives and under these directives there was a lot of possibilities to add on other measures: close roads, ask for certain certificates. That was actually what made the transportation and logistics really difficult”. (Interviewee 2).

Showing that the regionality of lockdown regulations ultimately made transportation, even in short distances, a challenge.

4.4.2 Manufacturers' Response

One universal change made by manufacturers was introducing safety measures within the workplace to limit contact with the outside to minimize the risk of the virus reaching production facilities. "I mean these are the very specific protection measures of employees or requirements that were being standardized by the government, by trade unions" (Interviewee 4). These measures included building physical barriers between workers, limiting access to the outside of the factories, getting workers vaccinated, and so on. Additionally, emerging technologies allowing for remote work helped mitigate infection rates.

"This included measures such as implementing remote work arrangements where possible, as well as having workers live on-site, which was previously quite uncommon in Vietnam. This reduced the need for travel and also safeguarded the workforce from coming into contact with infected people outside the factory." (Interviewee 1).

In the interview with I2, it was clear that taking care of his workers were one of his main priorities during the pandemic, along with continuing operations of his firm. "We've been taking incredibly good care of employees, making sure that they are in very good shape and in very good care; whatever they needed, they received" (Interviewee 2). He also paid for treatment of his worker's family members as well as provide support groups for workers with the aim of helping them take care of their children and other family members. "We tried to create support groups with surrounding family members from other employees that could then take care of children; so that entire families wouldn't have to move to the camps" (Interviewee 2).

The pandemic also pushed the development of digitalization in the nation. "The most prominent aspect is the ability to apply digital transformation technologies in Vietnam. Businesses have utilized online sales channels and explored various product categories in the supply chain" (Interviewee 5). This

included the implementation of remote work as well as further the ecommerce scene in the country. “Companies have started focusing on online marketing, leveraging internet resources to research markets, partners, and build effective online commercial channels” (Interviewee 5). However, the increase in digitalization came at a cost as it meant many firms had to invest in new computer systems while income was already dwindling.

“Just before the pandemic, I invested into a computer system with desktop computers for our employees. Then, [when] the pandemic came, I had to reinvest into laptops and then find a good way of communication” (Interviewee 2).

I1 mentioned that some manufacturers paired investments in automation with backward integration strategies to reduce the reliance on raw materials suppliers and other subcontractors. “Changes made by manufacturers to remain productive and competitive included investing in automation and digital technologies and bringing more processes in-house that were previously done by sub-contractors” (Interviewee 1). This increased the control manufacturers had on their supply chains as well as reduce costs overtime. Furthermore, the lack of physical contact with other individuals led to a new era of online communication through video calls and online meetings. These changes had to be made for companies to survive, regardless of industry.

“In the way of communication, everything changed, of course because we had group Zoom meetings, job interviews through Zoom, discussions with customers through Zoom. Anything with regards to production where normally we just walk outside the office and see for ourselves, we had to do through Zoom call. Everything had changed.” (Interviewee 2).

With the pandemic now less prevalent, these systems still remain in place either as permanent solutions, or a net to fall back into should another crisis emerge.

Another adaption that manufacturers had to make was to their cashflow management. With many factories operating with purchasing lead times, where raw materials are ordered months in advanced, they had to find ways to reduce costs as much as possible and find ways to finance their growing inventories.

“The biggest challenge was cashflow management, I would say. In our industry 60%-70% of the total costs are in the raw material and if you consider a purchasing lead time of three months, so even if you stop your whole supply chain, you still end up with three months’ worth of materials. Which you have to store somewhere, and you have to pay working capital interests, and you have finance it.” (Interviewee 3).

There were a number of ways in which manufacturers dealt with this issue. A combination of securing capital loans from banks, postponing the import of raw materials, and extending payment terms had to be maintained for the company to stay afloat. “Very early on, we had to work with the banks to secure working capital loans. We had to talk with our suppliers to postpone import of goods and extend payment terms” (Interviewee 3).

Lowering internal risks was another way that manufacturers looked to combat the effects of the pandemic. Bigger manufacturing firms that had factories in other countries looked to diversify their production. If a product could be made at another location easily, then it made sense to move that product there as it spread out the company’s production line. Should one factory fall short due to the pandemic, the risk of a total halt in production is minimized as other factories may still be operating.

“Manufacturers also tried lower their risks. Lowering their risk means trying to also look inside their network. Most of the manufacturers are not only, especially when we speak about big international brands, are not only operating in one facility and not only in one country, so there was also, of course, an attempt, to take the pressure and lower the risk by trying to transfer out certain orders that were probably not so complex that worked very fast by moving, let's say, a very simple shoe, from Vietnam to Indonesia, for instance. These are simply also more tactical maneuvers that manufacturers applied on top of the very pragmatic, immediate health and employee protection measures that were in place.” (Interviewee 4).

This statement was further backed up with I4's answer to another question:

“They all, during that period of time needed to really accept that they will traverse operational loss and the aim was really, just, ‘how can we, minimize that?’” (Interviewee 4).

To deal with the constant supply chain disruptions, manufacturers had to explore alternative methods of transportation, hold larger amounts of inventory and wait for more favorable freight prices, and analyze current market conditions and make management decisions on a day-to-day basis. This included revisiting production and ordering schedules every day. “They, of course, build a certain production schedule, and these production schedules needed to be changed and amended every single day.” (Interviewee 4). Manufacturers had to analyze their capabilities and put in more manual work than was usually required to structure themselves according to new supply chain challenges.

4.5 How Manufacturers Can Build Resilience in the Future

The various methods to building resilience presented by the experts include investing in technology and automation, expanding operations to other

locations, establish a stable infrastructure for communication, both internally and externally, analyze current and past events to create a relevant contingency plan, and train workers to optimize changes in production lines.

The pandemic made it clear that new communication technologies and automation are vital for a self-sustaining company. “The industry's resilience toward shocks like the pandemic can be improved by investing in digital technologies” (Interviewee 1). Without current technology, communication would have posed as a huge issue as the pandemic limited personal contact between individuals. Additionally, in the face of labor shortages, automation would ensure continuous production as well as increase factory output and efficiency.

The limitations placed on physical contact forced firms to utilize emerging technologies to facilitate communication, both within the firm and outside the firm. It was important for manufacturers to have a close relationship with their customers in order to receive updated information on their purchases. “You need to understand your demand side, so you needed to be in super close contact with your customers.” (Interviewee 3). Furthermore, the rapidly changing situation meant that monthly sales forecasts were no longer sufficient, so firms needed to do them weekly, or at times, daily. The forecasts produced valuable information in terms of demand planning and the ordering of raw materials. It was also important to have a strong communication infrastructure within the firm to keep employees informed of any changes in operations.

Diversifying supply chains is especially important for larger conglomerates that rely on foreign imports. The pandemic revealed the weaknesses in supply chains that did not expand their production and diversify suppliers. If a manufacturing plant for raw materials were to temporarily close, the entire supply chain would come to a standstill. Additionally, companies with multiple production facilities would try to localize production as much as possible. For

example, raw materials that were produced in one country would stay in that country for further manufacturing as well, rather than be transported overseas for processing. “Our Chinese factories try to source as much as possible locally, same as us here in Vietnam. We try to onshore or nearshore the supply chain and especially avoid overlapping supply chains between China and Vietnam to build resilience against such crises.” (Interviewee 3).

Continuous contingency planning for possible risk help companies prepare for crises better. Instead of having to come up with a plan on short notice, they would already have a carefully laid out plan of action to follow which will save them valuable time and money. The unpredictable nature of crises makes them very hard to plan for, therefore it is still important that manufacturers exercise a balance between contingency planning and daily analyses of the situation to determine the best course of action. “Prepare for the worst and certain things you can train and learn, and you can establish workarounds for political unrest, for natural disasters.” (Interviewee 4). It is also important for manufacturers to invest in sustainable technology as well. While more expensive in the short run, they have the potential to be more reliable in the future.

5 Discussion

This section of the paper aims to answer the research questions. These answers will draw conclusions based on information gathered in the data analysis section as well as on the research done in the literature review. One of the largest problems faced during the pandemic was the level of insecurity within international supply chains. Therefore, it was deemed that supply chains should be looked into separately due to their significance.

5.1 Research Question 1: Which socioeconomic factors were impacted the most by the COVID-19 pandemic in the manufacturing industry in Vietnam?

The COVID-19 pandemic had an overall negative impact on not only the manufacturing industry, but the nation as a whole. The overall output of the manufacturing industry experienced a decline (Le & Lam, 2021). As per the expert interviews, the drop in output was mostly due to a lack in orders and supply chain disruptions, rather than a drop in production capacity. Most facilities were able to stay operational due to strict government regulations limiting physical contact, even in the work environment. Many manufacturers who retained their workforce during the lockdown faced higher costs as a result of extensive decontamination work, COVID testing, as well as taking over the livelihood costs of their employees.

To fare the best they could, manufacturers enforced government mandates to create a safe workplace for their employees, reducing the risk of infections. Many had to make investments into technology, whether it was automation within the factories, or supplying employees with equipment that would let them work remotely. At a time of declining demand, making large investments proved to be very costly, meaning that manufacturing firms were forced to carefully analyze and manage their cost structures and cashflows.

The extensive health measures set in place by the government kept Vietnam COVID-free for the first year of the pandemic (Hoang, 2022). It was not until the emergence of the infectious Delta variant and the more fatal Omicron variant that the country had to go into a full lockdown (Hoang, 2022). Data obtained from the interviews also support this notion. The first year of the pandemic left the manufacturing industry relatively unscathed. The start of lockdown in 2021 meant that employers had to make the decision of whether to keep their workforce at the factory to continue production, or to lay off their workforce. Both of these options were taken by different manufacturers.

Those that decided to retain their workforce were faced with a barrage of extra costs in the form of COVID tests, equipment decontamination, vaccinations, and so on. The population density in the cities, where most of the industrial zones are, is extremely high. Due to this and Vietnam's lack of vaccinations available allowed the virus to spread quickly. The missing medical infrastructure was quickly realized by both the government, who then bought vaccines and quickly vaccinated the population. By then, a lot of damage had already been done, but the swift reaction and regulations set by the government allowed business to resume after a short time. While sickness was a huge problem, effective quarantine measures helped mitigate the spread of the virus. The international situation created an array of problems that translated to an initial rise in unemployment in Vietnam.

Since the outbreak of the virus, the unemployment rate in Vietnam has risen from 1.16% in 2018 to 2.38% in 2021 (Statista, 2023). This trend can be observed in Figure 11. Additionally, around 60% of workers in Vietnam experienced some form of job loss, reduced work, or reduced pay (World Bank, 2022). This was also backed up by the experts. While their companies retained the majority of their workforces, laborers with short term contracts were more likely to be let go by their employers. Moreover, the experts also reported about how some manufacturing firms were quick to let go of a large portion of their workforce when the government released a mandate allowing firms to fire their employees without any repercussions. Although the unemployment rate mostly recovered in 2022, there was also an increase in the underemployment rate (General Statistics Office of Vietnam, 2023). As international demand for Vietnamese goods fell during the pandemic, factories had less orders, meaning they did not need as many workers.

These problems were countered by manufacturers with the help of adapting new forms of technology that allowed factory automation and communication, internally and externally. Additionally, firms created contingency plans as well

as dealt with problems that emerged every day. This ties into resilience theory, which is concerned with how companies can continue to operate and recover from crises (Dormady et al., 2019). It became apparent that clear communication between firms, government, and the people was extremely important for businesses to continue operations during a time of crisis (Greenham et al., 2013, p. 6). The investment in new technologies is also one of the key pillars of developing resilience and sustainability.

The main socioeconomic factors that were impacted by the pandemic were health, employment, financial stability, industry output, and productivity.

5.2 Research Question 2: What disruptions did supply chains in the manufacturing industry face as a result of the COVID-19 pandemic?

Even before the pandemic, vulnerability, especially in global supply chains, were exposed with the blockage of the Suez Canal and now the war in Ukraine (Interviewee 4). The pandemic did magnify supply chain disruptions as lockdowns caused a lot of port congestions in North America and Europe. In some places, freight prices rose by up to 300%, making shipping extremely costly for many firms (Asthana, 2022). Container shortages ultimately delayed the production of goods by up to 40 days at a time.

Lockdowns being experienced during different times meant that inoperable facilities in countries currently in lockdown ended up slowing overall production in other places. A major reason for this is the increasing reliance on imports and exports as a result of globalization. Since many manufacturers in Vietnam rely on raw materials from other countries such as China, which experienced harsh lockdowns, they were sometimes left without any material to work with, further decreasing overall output. As many countries relied on China for the production of their goods, they had to look to alternatives. Out of the countries included in the China Plus One strategy, Vietnam was one of

the most attractive due to the nation's effective response to the virus. The influx in orders led to a labor shortage because Vietnam does not have nearly the production capacity that China has.

Vietnam combatted the pandemic by having each region imposing measures relevant to their current rates of infection. The regionality of the management of the pandemic made transportation between provinces extremely slow, further delaying already slow supply chains.

While supply chains faced many challenges even before the pandemic, many were magnified as a result of the COVID-19 pandemic. The most notable disruptions were container shortages, port congestions, difficulties between partners, domestic supply chain issues, and a lack of raw materials.

6 Conclusion

The COVID-19 pandemic impacted countries worldwide in a handful of aspects. Safety precautions set in place by many of the world's governments, such as lockdowns and social distancing, led to an abundance of problems. In Vietnam, one of largest industries that brings cash into the nation is the manufacturing industry. Given that, the thesis aimed to explore the socioeconomic effects of the pandemic on the manufacturing industry in Vietnam as well as the profound effects on supply chains within the industry.

The literature review compiled existing literature on relevant topics, ranging from introductory topics to familiarize readers with the base concepts that the paper is built upon to the more specific effects of the pandemic. Moreover, this section offered background information and important data that was used to compare to the answers provided by experts during the interviews.

The methodology introduced the scope of the thesis by explaining the conceptualization of the research questions. In addition, the formulation of the research design is explored to give readers a better understanding of how data

was collected. Five structured interviews were conducted with experts holding high positions in companies within the manufacturing industry based in Vietnam.

In the data analysis and results section, the information received during the expert interviews is organized and presented in a logical and structured manner. The importance of resilience in global supply chains was highlighted as some of the most significant challenges faced by manufacturers were related to supply chain disruptions. Additionally, it was made clear how important contingency planning is when managing a company, especially during a crisis.

The discussion section compiled information presented in the literature review and data received in interviews. This was done to explore the most socioeconomic factors that were impacted by the pandemic. This section also answered both research questions that were used to guide the thesis. The manufacturing industry was, overall, negatively affected by the pandemic. It highlighted many flaws within the industry and related supply chains. Information gathered and learnt by firms will prove useful to future planning should another crisis of this magnitude were to arise. While the pandemic is still ongoing, much of the manufacturing industry is at full production capacity and continues to expand as international conglomerates realized the importance of the diversification of production facilities.

The COVID-19 pandemic affected the manufacturing industry negatively, as the health effects and lives lost can never be regained. Extensive damage was done to many of Vietnam's important industries and business sectors. The pandemic had the greatest influence on health, employment, financial stability, industrial output, and productivity. Additionally, container shortages, port congestions, partner difficulties, domestic supply chain concerns, and a lack of raw materials were the most prominent supply chain interruptions.

6.1 Limitations

Despite this paper's attempt to portray the data as accurately as possible, there are various limitations that need to be discussed beforehand.

The educational approach of this paper indicates that the author may have not correctly identified or analyzed data. Additionally, some secondary resources were not available to the author due to monetary reasons, meaning that the literature review is not fully complete. The recency of events may also limit the paper as there has not been a lot of time for another research to be released on the topic.

The specific scope of this research made the interview pool extremely narrow, which may limit the data obtained from the interviews. As this is a bachelor thesis, it was difficult to come into contact with many experts. Furthermore, all experts work in, or own facilities located in South Vietnam, which may not accurately portray how the manufacturing industry fared throughout all of Vietnam.

The thesis is also subjected to potential biases by the author. Therefore, interview questions may have been formulated based on these biases and might have been researched differently had the topic been researched by another researcher.

The paper was written with all these limitations in mind with the aim to present data in the most objective manner.

6.2 Recommendations

As the scope of the research was fairly narrow, the topic can potentially be expanded upon and new data with the benefit of hindsight may present more accurate information than presented in this paper. This section will put forth some recommendations for any future research done on this topic.

Firstly, expanding the scope by finding experts and companies located in other parts of Vietnam may present differences in how the country may have handled the pandemic. This would be a more accurate portrayal of the effects of the pandemic on the country as a whole.

It may also be interesting to study how countries similar to Vietnam, in the sense of an emerging manufacturing hub, dealt with the pandemic and how they were affected. This could then be used to compare and contrast with Vietnam. This may produce valuable information showing which socioeconomic factors are most vulnerable as well as how the manufacturing industry can better prepare for future crises.

Finally, another topic that should be broached is the impact of the pandemic on employees in the manufacturing industry. Due to the distance of the researcher and the location of research, it was not possible to conduct interviews with the workers at manufacturing plants. This may be an interesting topic to research as their accounts may be very different to the information produced in other articles, journals and interviews. It is recommended to approach this in a qualitative manner in order to obtain data accurately and gain extensive and rich knowledge in this topic.

6.3 Implications

The research presented in this paper expands on a growing collection of research on the impacts of the COVID-19 pandemic. It can be used to build upon research concerning the impacts of the pandemic in Vietnam or in countries holding a similar status to Vietnam. As the events described in this paper are fairly young, the researcher presented here can be used as a foundation for researchers to present in their own works.

Furthermore, as the paper presents a firsthand account on how experts within the industry dealt with the effects of the pandemic may produce useful insight as to how companies can combat crises in the future. The findings of the paper

are not strictly confined to just the manufacturing industry as many industries suffered the same way due to the pandemic. This may serve as a compilation of information on the effects of the pandemic as well as how experts reacted to keep their businesses operational.

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Appendices

Appendix 1 – Interview Questions

Table 1: Interview Questions and Source

Question	Motivation	Source
Which socioeconomic conditions were impacted the most in the manufacturing industry during the pandemic?	Identifying key factors	By the author of this paper with the assistance of his supervisor
How did the pandemic influence productivity of the industry?	RQ1 → Productivity = competitiveness; being competitive attracts customers and investors, without competitiveness it may lead to less business, leading to less jobs = weaker economy	
What measures have been implemented by the government to support	Identifying key factors	

businesses during the pandemic?		
How has the pandemic affected Vietnam as an international competitor for manufacturing?	RQ1 → implications on the changes in productivity	
How were the effects of the pandemic counteracted by manufacturers?	Identifying key factors and conditions → efforts to minimize damages in certain places shows us which aspects are considered the most important / susceptible to change	
What supply chain disruptions caused by the pandemic affected the manufacturing industry the most?	RQ2 → identifying significant supply chain disruptions; shows which were the most impactful	
How did manufacturers respond to disruptions in the supply chain?	RQ2 → which SCDs did manufacturers want to minimize the most? (Which posed the most problems/threats)	
What changes were made by manufacturers to remain productive and competitive?	RQ1 → actions that manufacturers took to protect certain socioeconomic conditions	

How was the employment rate protected by the manufacturing industry?	RQ1 → how did companies try to retain their workforce to keep up with demand	
How can the industry's resilience toward shocks, like the pandemic, be improved?	Experts' recommendations on how to prepare the industry for potential future crises.	

Table 1 - Interview Questions Development (by the author of this paper)

Appendix 2 – Interviews (English)

Interview 1

Head of Development at an International Shoe Company with Manufacturing Plants in Vietnam

1. Which socioeconomic conditions were impacted the most in the manufacturing industry during the pandemic?

The socioeconomic conditions that were impacted the most in the manufacturing industry during the pandemic were the livelihoods of workers and the financial stability of small and medium-sized enterprises (SMEs). Many factories had to shut down temporarily, leading to job losses and reduced income for workers. Additionally, SMEs that were unable to adapt to the new operating environment struggled to remain in business, leading to further job losses and economic hardship. If a Covid case was detected in the factory, it also meant that all workers had to quarantine in the factory, which meant that the factory had to provide beds, tents, medicine, covid test, and food which of course meant that they had to spend a lot more money which they did not plan on.

2. How did the pandemic influence productivity of the industry?

The pandemic had a significant negative impact on productivity in the industry due to a range of factors, such as supply chain disruptions, labor shortages, and reduced demand for goods. Social distancing requirements and lockdown measures also had an impact on the workforce, as many workers were unable to travel to their workplaces or were forced to work from home.

3. What measures have been implemented by the government to support businesses during the pandemic?

Governments across Asia, but especially in Vietnam have implemented a range of measures to support businesses during the pandemic. These measures include financial support in the form of loans and grants, tax breaks, and subsidies for wages and training.

4. How has the pandemic affected Vietnam as an international competitor for manufacturing?

Vietnam has been affected by the pandemic, but it has also emerged as a key player in the global footwear manufacturing industry due to its competitive labor costs, favorable trade agreements, and proximity to key markets. The pandemic has highlighted the importance of diversifying supply chains, and Vietnam is well-positioned to take advantage of this trend. I believe what helped Vietnam the most was China's strict no covid policy which meant that people could not travel there for such a long time, which made it much easier to do business in Vietnam. Hence a lot of brands shifted their production to Vietnam.

5. How were the effects of the pandemic counteracted by manufacturers?

Manufacturers responded to the effects of the pandemic by implementing measures to ensure the safety of workers, adapting production processes, and diversifying supply chains. This included measures such as implementing remote work arrangements where possible, as well as having workers live on-

site, which was previously quite uncommon in Vietnam. This reduced the need for travel and also safeguarded the workforce from coming into contact with infected people outside the factory.

6. What supply chain disruptions caused by the pandemic affected the manufacturing industry the most?

The supply chain disruptions caused by the pandemic that affected the manufacturing industry the most were related to transportation and logistics. Border closures, flight cancellations, and reduced shipping capacity disrupted the movement of goods, leading to delays and shortages. The cost of containers also shot up 5 times during the pandemic, which meant that it was much more costly to ship goods around the world which led to brands losing a lot of margin on their product.

7. How did manufacturers respond to disruptions in the supply chain?

Manufacturers responded to disruptions in the supply chain by exploring alternative modes of transportation and increasing inventory levels by holding finished products in their warehouses for longer to wait for more favorable shipping container prices.

8. What changes were made by manufacturers to remain productive and competitive?

Changes made by manufacturers to remain productive and competitive included investing in automation and digital technologies and bringing more processes in-house that were previously done by sub-contractors. This reduced the level of risk as the manufacturer could directly control processes as well as overtime being able to reduce cost.

9. How was the employment rate protected by the manufacturing industry?

The employment rate in the manufacturing industry was protected through a range of measures, including wage subsidies and flexible work arrangements. Many manufacturers also took steps to ensure the safety and well-being of their workers during the pandemic as mentioned above by having them live onsite or paying wages even when the factory was closed and not producing.

10. How can the industry's resilience toward shocks, like the pandemic, be improved?

The industry's resilience toward shocks like the pandemic can be improved by investing in digital technologies, building more diversified and resilient supply chains, and having more countries to produce goods from so that products can be shifted in case a country locks down. Another topic that is emerging is nearshoring, where products are manufactured closer to the intended sales country.

Interview 2

Owner of a Pottery, Furniture, and Accessory Manufacturing Company

1. Which socioeconomic conditions were impacted the most in the manufacturing industry during the pandemic?

There are a few points to this; Starting with Vietnam locking down a few months before other countries. We couldn't receive any visitors anymore and we couldn't visit any of our customers. That had a huge impact on product development, communication with customers. It was difficult to build relationships with employees and customers through zoom. When it came to the lockdown, it was clear that it would take longer than the two weeks [of lockdown] that the government had announced, and so the question I asked to the union and to the employees was: who would like to stay on? My promise was that we would take utmost care of what we could do with regards to food supplies and so on. We went out and bought sofas and beds, whatever we

could get our hands on. Then games, so people could also do some recreation, badminton, volleyball, basketball, football, and so on. We made sure that everyone had access to internet within the company so they could video call their families without using their 3G or network. The biggest impact for us was, again, to get the food supplies into the factory, to make sure that our people, if they needed anything with regards to medicine and so on, that this was taken care of. We were the second company within our industrial park which got vaccinated, which was very good. We put a lot of effort in making sure our people were the first and then attempt to get their families vaccinated so that more people could go back to meet their families.

The impact was rather big after 4 and a half months, we could open again. Within that time, our people were staying in the factory. They were cutting their hair, washing their clothes, making food and so on. It was really a huge community within a small area where they also needed to make sure that nobody was fighting, that everybody was harmonious with each other. Obviously if you spend only a night or two in the factory, it would be much easier than such a long period where nobody knew when it would end.

Follow-up question: The workers who stayed in the factory, how did that affect their families?

They were actually very grateful to the company because of the attempt to get them vaccinated first and get their family vaccinated. They got a bonus and compensation for being away from their families for so long, so the families were overall happy. The government made the announcement after two weeks of the pandemic that companies, at their own discretion, could lay off all their workers without any further grounds. That, of course was horrible, many of the companies did that; fired the people after two weeks with no grounds and stopped paying their salaries. This is something that we didn't do, we also paid those who decided to stay at home their full salaries without any bonus payments.

2. How did the pandemic influence productivity of the industry?

Well, for us, what we have been doing is we prebought raw materials, so for the time of the pandemic we could fully produce. Throughout, we had no shortcomings of raw materials, so when we opened the factory gates, the products were actually stacking all the way up to the roof, so, we had products available to ship immediately. [The] problem was not so much production, it was more the ability to get space on the vessels, to get containers, to get trucks that were able to go in and out of the harbor. Every province had its own regulations so the drivers for a normal trip where they take 30 minutes would be three to four hours because they had to stop at all the intersections and the provincial borders to show [their] documents and if anything was not compliant, they would be sent back. Productivity was more affected on the logistics side, rather than the actual production side. For us, there were shortages with packaging material: inking, taping, labelling the cartons. These are materials that come, mainly, from China. Since there were not imports from China to Vietnam, people had only so much stock before they ran out.

3. What measures have been implemented by the government to support businesses during the pandemic?

Actually, there was no support from the government. They thought that they would support the companies by allowing them to lay off their employees after the two weeks [of lockdown] without paying them any salaries. For the people themselves or the company, there was none. People that supported [us] were our landlords, for example, that allowed for postponed payment of rent. Other sub suppliers of ours that would postpone receiving payments, but from the governmental side, there was no support. We've tried through the voice of EuroCham to address many of the issues, especially for the testing. Our employees had to be tested every day and the testing was really expensive. [It was] 7.5\$ times 400 people that we had in the company, so you can imagine that was really expensive. [The government did] just the opposite actually,

once we had one positive case, we had to clean the factory two times, which was \$30,000. People are now in prison because they asked for too much money or they asked for money, but it went into their pocket.

4. How has the pandemic affected Vietnam as an international competitor for manufacturing?

There, one also has to see the position of China. So, the pandemic was overall positive for the fact that many of the international buyers decided not to buy from China anymore, and this all came then to Vietnam which, of course, Vietnam could not shoulder because Vietnam does not have the same production capacity, manpower, [and] technology that China has. So, overall, Vietnam was overloaded by demand, which led to companies hiring more people that had all been laid off.

Follow-up question: Was there at any point in time a labor shortage?

Yes. After the pandemic when people were allowed to travel back to their provinces. We also have no official numbers of people who died of starvation during the lockdown. For those companies that did not pay their employees, their employees did not have any food, money, and support so they ran back to the provinces and said they would never come back to Ho Chi Minh City and the surrounding provinces; Binh Duong and Dong Nai. That created a labor shortage after the pandemic, but that only lasted for a little bit over half a year. Many companies have also closed post-covid as they didn't receive any orders since July or August last year (2022), so there are a lot of people now seeking employment.

Follow-up questions: You also mentioned that a lot of companies are switching their buying from China to Vietnam, was this before or after the pandemic?

What we see is that many Chinese [companies] are buying Vietnamese factories and then produce in Vietnam in order to produce and sell overseas.

But yes, there was also a tendency, it's also a strategy called "China plus one", and the plus one was either Malaysia, Indonesia, or Vietnam and it turned out that Vietnam was the best hub for furniture, pottery, apparel, and shoes so the majority [of orders] actually went to Vietnam.

5. How were the effects of the pandemic counteracted by manufacturers?

We've been taking incredibly good care of employees, making sure that they are in very good shape and in very good care; whatever they needed, they received. If they had family members that needed to go to the hospital, we would also pay for that. We made sure that there were no additional charges whether they were at home or not. We tried to create support groups with surrounding family members from other employees that could then take care of children; so that entire families wouldn't have to move to the camps.

6. What supply chain disruptions caused by the pandemic affected the manufacturing industry the most?

There's a combination with the Suez Canal event with the Evergreen vessel getting stuck there. The availability of containers, trucks, drivers, vaccinations of the truck drivers so that they could physically transport products from the factory to the harbour. Employees of harbours also had problems getting to their workplaces. The logistics chain from trucks, lorries, and harbours was the biggest issue. And thereafter, the shortage of containers because they got stuck in the US, plus the congestion of ports in Europe as well as in the United States. There were times where there were over 50 vessels waiting to call in to Los Angeles harbour, same for Europe. Regardless of whether Amsterdam, Bremerhaven, Hamburg, which were stuck in the North Sea, respectively as on the shore of Los Angeles. If you imagine, it takes two days to load and unload [containers off the vessels], even if it were one day, there would be a 40-day delay for a vessel and goods arriving. That has a huge impact on the finances, on the logistical part of delivery supply chain. I think the biggest thing that

became clear was that supply chain managers either don't have the power or the knowledge of what's going on within their companies. They didn't know what was in store, what's in the distribution centre, what's on road, and what's been ordered from the suppliers to connect the dots to say "okay, now we need to stop ordering" or "now we need to postpone shipments". Everything happened very radically, our customers cancelled orders that were produced already, they postponed shipments up to one year. That goes back to the supply chain, to the fact that people don't know what they have in the order books and what they have in store.

Follow-up question: So, the problem, you would say, was that companies didn't adjust their supply chains to the crisis going on?

It was more that they overreacted. It was clear that this party would not go on forever, that not everybody will do home office or get \$1,000 support from the government on a monthly basis. Our customers reacted, by far, too late, and then they overreacted because now we see that there is again a huge pull for some of the products, and some others that got ordered a lot after, got cancelled. It's 0 to 1, it's not something which was mild. We as a manufacturer are not treated as an equal partner so they rather than tell us what they are going to do, they just do it, and we have to fit to them.

7. How did manufacturers respond to disruptions in the supply chain?

Different ways. As I said before, we, as a company, did not believe that it [(the lockdown)] would take two weeks only although other companies believed it would only take two weeks. So, they closed down their operations thinking that after two weeks they can go back to work. I think the biggest adjustment is to try to take it slower the next time and learn from that, to not overreact, hire people for more production because otherwise these people would need to be laid off. Many suppliers hired a lot of people which they laid off again, many tried to increase production capacity and were buying new equipment

and now this is all idle. It was really a financial overexposure for all the manufacturers.

8. What changes were made by manufacturers to remain productive and competitive?

The first thing was home office, so employees in administrative positions got a laptop. Just before the pandemic, I invested into a computer system with desktop computers for our employees. Then, [when] the pandemic came, I had to reinvest into laptops and then find a good way of communication. In the way of communication, everything changed, of course because we had group Zoom meetings, job interviews through Zoom, discussions with customers through Zoom. Anything with regards to production where normally we just walk outside the office and see for ourselves, we had to do through Zoom call. Everything had changed.

Follow-up question: Did this impact productivity and competitiveness of your company as well?

Not really, no. Customers wouldn't understand why we wouldn't ship because they needed the products urgently. We tried to explain to them that Vietnam was in a state of lockdown, meaning nobody was allowed to leave the house and, of course, we couldn't get any containers in to load them and to ship them. On that angle, that the customers didn't sympathise, didn't understand, or didn't want to understand. That obviously had an impact for them and for us and we tried to smoothly communicate with them about what's happening. Also with our employees, to keep them motivated, to see if there are any issues and so on. There was a lot of communication through Zoom and telephone calls, much more than usual. Normally, as I said, we can go outside the admin office and walk to the factory or drive 30 minutes to the manufacturing and talk to them.

Follow-up question: Were there any communication issues that came up since you had to use Zoom?

No, we all know each other long enough so we understand that if the other person doesn't understand, we will get someone else in to explain or translate. Either in the call or side by side.

9. How was the employment rate protected by the manufacturing industry?

Everybody had to do it. The government didn't provide anything. We had to get fresh vegetables, meat, juices, shower gel, detergent to wash the clothes, razors for people to shave; everything. It's like you build up your own little city of 400 employees, or people, both male and female, and you need to get everything there. Like normally what they would have at home, you had to have it there. Whether it is a rice cooker, or rice, scissors or a cutting board, anything. The only two choices for companies were to close or to take care of their employees.

10. How can the industry's resilience toward shocks, like the pandemic, be improved?

Again, what I find, you need to communicate and have ways of communication. Obviously, nobody knows what will happen tomorrow, so it is very important that you have a short communication line to the decision makers anywhere. Whether it is in the transportation industry in Vietnam, whether it is on the customer's side with purchasing, or the finance team, the logistics team. You need to have the telephone numbers, you need to know who they are, and you need to be able to reach out to them. If we did not have this telephone database, we wouldn't have this way of communication and closeness to our customers, it would have been much worse for us, as it was for many other companies who didn't have this kind of setup because the CEO is somewhere else or is not involved or engaged as I am. So, in order to react smoothly and

swiftly you need to have this level of relationship and possibility to communicate. Like a communication infrastructure. You don't need to talk for 45 minutes, you just need to tell them the status quo, or the revised status quo and then you can maneuver much better and more precisely than if you did a newsletter once a month. The communication with the European Chamber of Commerce, for example, was amazing. The impact they had on the government and the communication channels they opened to the government was unparalleled. So, we had the possibility to voice our concerns to the Binh Duong government through Zoom call. You were allotted some time slots and you could then voice your concerns to them. Whether the government did something was a question of the structure of the Vietnamese government. But the fact that we had a channel to voice our concerns was very important.

Follow-up question: Were these concerns ever addressed by the government?

I think they did the best they could. One of the key concerns was that every province did their own thing. The government gave out directives and under these directives there was a lot of possibilities to add on other measures: close roads, ask for certain certificates. That was actually what made the transportation and logistics really difficult.

Interview 3

CFO at a Leather Tannery

1. Which socioeconomic conditions were impacted the most in the manufacturing industry during the pandemic?

Overall, Vietnam handled the outbreak very well. We were one of the countries which were still producing the longest. There was one intense year of curfew (lockdown) but once this was over, [Vietnam] was opened up very quickly. March 2022 was when the hand break was pulled worldwide. Our customers in the shoe industry stopped all orders so we saw a huge over capacity, not

only from us but all industries in Vietnam, except for pharmaceuticals. All of a sudden everyone had too many employees. The government looked at the companies and tried to release the burden and even offered to lay off staff without having any consequences or penalties, which was quite crazy. I remember the time when the Taiwanese and the Koreans were celebrating when they could kick out people without paying compensation. This was rather brutal. For our company, we kept 100% of the people employed. In Tay Ninh and Binh Duong, in both facilities, we didn't let anyone go. We wanted to make a statement that we were different as a German company in a foreign Asian environment. So, we kept the people employed even though we didn't have anything to do, we just used the time for training. The big impact was for the Vietnamese as the majority were migrant workers. The birth rate in the highlands of Vietnam is super high, between seven and nine children per family. These children then go to the cities and provinces with a lot of industry, like Ho Chi Minh City and Binh Duong and Dong Nai. They work there and then send the money back home. All of a sudden, out of these nine to ten children, most were unemployed, and they had no money to send to their families in their hometowns. For example, instead of nine children, only two were employed, and this was not sufficient for the family to, to a certain extent, survive. Again, we kept everybody employed and even paid a bonus at the end of the year even though there was no real justification behind it, but more to just support the families of the workers. Unemployment rose.

2. How did the pandemic influence productivity of the industry?

Productivity in terms of efficiency did not necessarily go down. The people were actually happy to be employed. It was just a matter of fact that the orders went down so you just had nothing to do. So, if you look at efficiency in terms of output per man hour then yes it went down dramatically, but simply because there were no orders, but the people were nevertheless motivated to work because they were happy to still have a job.

Follow-up question: Did your company face any difficulties with logistics that affected productivity?

We did not face that big of problems since our market is 50% in Vietnam and 50% in Southeast Asia. So, we still had containers going there and it wasn't a big issue. We got a lot of raw materials from the U.S., and this was around the time when ports weren't heavily congested, but we also deal with very big suppliers like Heinz, JBS and National Beef, and they have very strong [influence] on the logistics companies. This let them push through to get containers. If you deal with smaller suppliers, yes you would have faced a massive issue, if you deal with the big players, they have more power to get containers.

3. What measures have been implemented by the government to support businesses during the pandemic?

There was not much. You got a little bit here and there. Social insurance got a rebate. There was not much, actually. Nothing compared to America or Europe, not even close. They had a one-off allowance for the workers to support them with housing. They paid a housing allowance from the trade unions and the social contributions were paid for one or two months. Nothing major, though.

4. How has the pandemic affected Vietnam as an international competitor for manufacturing?

I think, not negatively. Vietnam handled [the situation] very swiftly. The government saw that they didn't have enough vaccines, so they asked every country in the world for vaccines. They went out and just asked. You can see them (the government) as action driven. They're not talkers, they're actors. They got vaccines left and right, from every country and tried to distribute them as efficient as possible. This was one positive story. We were one of the

first [countries] to open up again and they tried to keep companies running the whole time. Our company in Tay Ninh, for example, was running through the whole pandemic, we didn't have one day down. There was not one day where we did not produce during the whole pandemic. And I think there are not many countries that can compete with this.

5. How were the effects of the pandemic counteracted by manufacturers?

You tried to push of course that your people get vaccinated as soon as possible, so you had to lobby quite a bit to get your people vaccinated. The biggest challenge was cashflow management, I would say. In our industry 60%-70% of the total costs are in the raw material and if you consider a purchasing lead time of three months, so even if you stop your whole supply chain, you still end up with three months' worth of materials. Which you have to store somewhere, and you have to pay working capital interests, and you have finance it. Very early on, we had to work with the banks to secure working capital loans. We had to talk with our suppliers to postpone import of goods and extend payment terms. It was important to look at our working capital and try to optimize it. You can also go to the other side of things and look toward your customers and try to communicate as frequently as possible because in such a crisis, the one with the most information is the one who wins. Make decisions by the day, act quickly and swiftly. This is the important part.

Follow-up question: Did you feel like you were not treated as an equal partner in the supply chain?

We all sit in the same boat so if our customers pull the handbrake and say "hold all orders" we will do the same to our suppliers. It just follows through the supply chain. The unfortunate part is the less communication you have with your partners, the higher the bullwhip effect will be. Last year, all of a sudden, orders went up like crazy and people couldn't get enough materials out of Asia and now the inventories are full so now, they pulled the handbrake again. Full-

blown bullwhip effect. Many of us are publicly listed so we are under huge pressure. If you look at the balance sheet of big companies you will see that they are loaded with debt, which they now have to pay back. So, they are under huge margin pressure. We would love to think that we are equal, but you will never be equal with your customer.

6. What supply chain disruptions caused by the pandemic affected the manufacturing industry the most?

The whole story with the containers. There was an imbalance of containers in the world. America stopped a bunch of containers with congestions in Los Angeles and products were standing around in the factories and in the yard so there was no backflow to Asia. Countries were fighting over containers, getting place on the ship for your goods. That was the main topic. Then again, we were not too heavily impacted as others were. If you shipped to Europe, then you would suffer a lot. Europe was congested, but we don't ship there, so we weren't affected as much. We try to reroute as much as possible by truck.

Follow-up question: Did you have any problems with Chinese suppliers?

We don't have that many commodities that we buy from China, and we have local manufacturing in China, so we separate the business. Our Chinese factories try to source as much as possible locally, same as us here in Vietnam. We try to onshore or nearshore the supply chain and especially avoid overlapping supply chains between China and Vietnam to build resilience against such crises.

7. How did manufacturers respond to disruptions in the supply chain?

We have a three-month bid system for orders. For example, we have quite a lot of shipments to Hong Kong. So, whoever has the best bid gets the route. During the crisis, the forwarders put quite a lot of buffers on the bid as they were afraid that the prices would go up and down too much. They had to

account for volatility. So instead of doing a three-month bid, we went to the on-the-spot market. Whenever we needed to ship something, we simply bought a slot on the container ship and that was it. It was much cheaper in the end because we didn't need to pay for the volatility on the forwarder's side and much faster to book. It was easier to deal with the shipments directly that go through a forwarder at the crisis time.

8. What changes were made by manufacturers to remain productive and competitive?

The pressure is increasing on automation as every person we had in the factory was a potential person who could bring in the pandemic. So, reducing the headcount, even in low labor cost countries like Vietnam. I think this was a big push in this direction. Automation would be the biggest one, I would say.

9. How was the employment rate protected by the manufacturing industry?

We didn't release one single person. We paid allowance to people on a monthly basis to people who could work. For people who couldn't because their district or ward was locked down by the government, they received a support allowance because they couldn't make overtime and stuff. We even paid company bonus, so a 13th or even a 14th salary to support them.

Follow-up question: Did you have employees living on-site or were they working from home?

Officially, you couldn't have people living on your company property, but during this period there was this "work, eat, sleep", so people had to come to the factory and sleep in the factory. They were not allowed to go home. We kind of had to build a prison here, which was horrible. Of course, a voluntary prison, but once the people came in, they could not go out again. It was bad especially when people had family problems because we weren't allowed to let them leave the premises.

10. How can the industry's resilience toward shocks, like the pandemic, be improved?

The most important point in any crisis is communication, internal and external. You need to understand your demand side, so you needed to be in super close contact with your customers. A monthly sales forecast was insufficient, we needed a weekly or even a daily one. At the end of the day, money in, money out. This information then helps with our demand planning for our raw material supply. Headcount is another story. We could've reduced 60% of our workforce and we wouldn't have suffered any capacity issues. But sometimes it's not about doing the right thing by the book, but sometimes you want to be different from your competitors and stand out. Also, as a German, and not do it as the Koreans or Taiwanese in the short-thought way.

Interview 4

CSO at an International Shoe Company with Manufacturing Plants in Vietnam

1. Which socioeconomic conditions were impacted the most in the manufacturing industry during the pandemic?

Health was impacted the least because there were very effective measures in place especially in Vietnam to really isolate those occasional appearances of covid. The fear of the population from the virus and related propaganda mechanisms in a socialist country obviously contributed to a high level of discipline. Or, if we look back over the last years and we know based on experience that the virus was especially aggressive. Also, if it comes to mortality rates, in the months after the initial appearance, then, the country has done a very good job there. When we further assume that the following iterations of the virus had higher infection rates and so on, the impact on health retrospectively, was very minimal here in Vietnam. The related measures, however, were impacting a lot. All these let's say imposed measures

that the government triggered in terms of, social distancing, but also, isolating certain areas completely.

Then lockdowns, and so on. Of course, had the biggest impact on the people. And as you rightly said, most of those were related to income, missing income, and that also led very, shortly after to the fear of social unrest also in Vietnam, where, again, also the government fraud has a high presence, also the military made sure that the basic commodity items were provided to people in all areas. So, income was really the biggest hit and related to that of course also the missing industrial performance means many factories needed to shut down their operations. Or reduce or follow specific requirements, which were very difficult to implement now.

2. How did the pandemic influence productivity of the industry?

I mean there is obviously a pattern that can be applied across multiple industries. The lockdowns that happened predominantly in Europe towards middle to the end of 2020 were triggering a totally different demand signal for products here in Asia. This comes with a time leap to a certain extent because you still have a full product pipeline for the warehouses and whatever. So, it comes with a, with a time leap, but these lockdowns obviously, trigger subsequently a lower demand for Asia. So, the order situation, was impacted at a certain point of time in 2021 and that was probably a bigger problem than the overall productivity.

I don't want to contradict my initial response about income. I'm talking here about the entire population. I'm not talking about, people that are, only employed in the manufacturing industry. Now, manufacturing industry was probably a little bit better off based on what you already stated. I'm talking about, all public services, I'm talking about hospitality, I'm talking about markets, shops and so on, where absolute basic income, was missing. On the productivity side, I agree due to the let's say effective measures. Where also

government implemented, let's say lockdown situations, particularly also in office environments or where there was a high density of people in the city. They tried, with effective measures and there was a protocol that, for instance, manufacturing facilities needed to follow. That started with disinfecting cars that were entering a premise. That was temperature measurements of every person entering the premise and so on. It was effective measures for people working on a production line with giving a minimum distance, wearing masks, in canteens with separators between the individual food stalls and the tables where people were sitting just to name a few. There were very effective measures where they were able to maintain manufacturing environments to continue operating. This was only affected, let's say in the period of August, to beginning of October, in 2021 when basically the country was in an entire lockdown. And in this period also, any kind of manufacturing facility was affected. And when you look at the size of Vietnam and its [role] in global consumer markets in terms of the overall production capacity, it's obviously a huge loss of capacities.

A lot of business tried to transfer out of the country or to alternative sourcing countries, but that was a big impact again, then triggering, of course, the lack of product in key markets like in North America and Europe.

The shipping industry and logistics in general, was obviously evenly affected by the pandemic, but as I said, you need to put a different kind of storyline over the entire logistics area because logistics was already impacted prior to the pandemic with some very serious trends in dynamics. It was starting already prior to the pandemic with container shortages, here in Asia which made transportation prices a spike to an absolute premium which were 5, 6, 7 times, above the normal shipping prices of the years before. The accident in the Suez Canal also had an impact on the global shipping industry with, a lot of delays, a lot of messed up schedules at key container ports in the world. So, the logistics had a different set of challenges already prior to the pandemic and, of

course, the pandemic was increasing the effect for the shipping industry because obviously you had similar things like lockdowns in certain areas, lockdowns in certain countries. So again, ports needed to stop their operations because there was a lockdown, it was the same in Vietnam. Again, the shortage of containers persisted and so on. It's a different level of complexity that the logistics industry was affected with in addition to just the pandemic and market dynamics that we just talked about.

3. What measures have been implemented by the government to support businesses during the pandemic?

I believe in the first year of the pandemic there were really pragmatic support programs from the government in place to support, let's say, the simple people. So, it was recognized that there is an issue and that there is a lack of income especially for those who are living much closer to the edge, so there were programs in place to support these people. On the industry side, I believe there has been nothing in 2020 because as you already pointed out, productivity, particularly in the first year was absolutely not as affected. In the second year it was affected, but also in the second year, the government also stalled any kind of support programs for local people in any way. There was an initial support program for those who were most in need, for businesses here in Vietnam.

4. How has the pandemic affected Vietnam as an international competitor for manufacturing?

I think not at all. I think, it has even probably raised the profile because when you look back into those times, there are obviously, in every country, specific discussions about how the respective government is handling the situation. You have multiple opinions, of course, on it. But as a matter of fact, while the Western countries were struggling with human rights and personal rights and the call for more community, responsible behaviors of the individuals, was

often so ignored because the individual in a Western civilization [is] the center of the universe. Everyone comes first. It's totally different in Vietnam where it's a collective where everyone really stood in as a part of the community where behavioral requirements were followed a hundred percent and therefore, measures imposed were really effective. I mean, of course, if you go into details and if you live on the ground at times when they were going around with their military police vehicles in the evening picking up people out of their apartments that have been in contact with someone who probably was in contact with someone who was infected. Then we are coming to the very borderlines of how this has been handled. But this is, of course, not in the public knowledge. This is something that we have experienced here ourselves, and that's very scary. But overall, and to answer the question that you asked, I believe Vietnam has rather gained reputation as a very reliable sourcing country, already over many years, that also handled the pandemic exceptionally well.

5. How were the effects of the pandemic counteracted by manufacturers?

I mean these are the very specific protection measures of employees or requirements that were being standardized by the government, by trade unions. You need to put yourself also into the mind of a manufacturer and the liabilities that are coming with serving a certain customer, a brand, whatever. There are orders, there are order confirmations, so, manufacturers are also liable for on time delivery of goods while during the pandemic. There was a lot of openness on many brands' sides to accept this more or less as a force majeure to really treat this exceptionally also don't insist on penalties that would be applied for late treatment like air freights. Manufacturers also tried lower their risks. Lowering their risk means trying to also look inside their network. Most of the manufacturers are not only, especially when we speak about big international brands, are not only operating in one facility and not only in one country, so there was also, of course, an attempt, to take the

pressure and lower the risk by trying to transfer out certain orders that were probably not so complex that worked very fast by moving, let's say, a very simple shoe, from Vietnam to Indonesia, for instance. These are simply also more tactical maneuvers that manufacturers applied on top of the very pragmatic, immediate health and employee protection measures that were in place. But the problem obviously during that time was that nobody could predict how it is going forward at a certain point of time, there was high confidence amongst manufacturers in Vietnam and how they handled the situation, but you never knew really what would happen. You heard about mutation of the virus in other countries. Vietnam has isolated itself very efficiently from the rest of the world by closing the borders, but still, they were repatriating Vietnamese citizens and many of those citizens brought in the new virus versions and so on. You never were able to predict safely and as a manufacturer you have your supply chain, material manufacturers, ink manufacturers, subcontractors that are doing certain treatments for you on a product, like a print or whatever. So, there was still this kind of dangling sword above everyone on how safe the situation is in terms of stability of the operations. And as I said, it all collapsed a little bit when you had the entire lockdown in 2021 and then you should not forget it shut down at the same time, but then until your supply chain is up and running again, the garment manufacturer might still have garment that was not delivered to the factory so they can immediately ship some garment when they start their operations again. They obviously lost production capacity. That means the apparel factory in this case can work with this material, but once they are finished it will take a month until tier two is ready to deliver the next batch. So, it all comes with a huge impact that is bigger than just the two months [of] lockdown.

In general, the question that you asked, I believe, the manufacturers have done, overall, a great job to mitigate risks in general during the entire pandemic, so the impact of these two months is rather minimal. Compared to

the overall gravity of the situation the pandemic caused in the entire world, Vietnam was pretty much a sunny island.

6. What supply chain disruptions caused by the pandemic affected the manufacturing industry the most?

I mean the production capacity, of course and now you are looking specifically into Vietnam, but look into China and I mean China that has been on a lockdown since the beginning. For this country, that was significant. Of course, not during the entire period of time people were not able to work, or factories were not able to work, but for a big part of it. Shipping, as you rightly said, was impacted. If you looked at the more sophisticated brands, I believe, Vietnam is in the meantime able to provide roughly around 80% of all the materials that are in average being used by international brands. To source them here locally, is a big advantage compared to five years ago where this percentage was probably rather in the forties or fifties.

The capabilities have been ramped up here, which was to the benefit of the country as well that they can cater for themselves, but the key disruptions caused by the pandemic are really on the supply chain side are really, shortages, the uncertainty about delivery times, lead times for materials from order to arrival. At your factory that are, kind of nailed in stone, and that are very critical, and that then also try a certain kind of liability because you confirm a certain true product, let's say on a lead time of 60 days, that means the order is placed and then you have 60 days until you need to deliver, or dispatch the product. Of the material lead time is 30 days out of that, you can imagine how five- or 10-days delay, were impacting this. So, the biggest, challenge was here really, the missing transparency and unreliability of the supply chain if it comes to materials, if it comes to subcontractors in certain areas. That was the biggest challenge. And for everyone, this does not only incorporate now the production of these materials and not only the shipment of these materials, but there were also huge delays in uncertainties related to

customs procedures for instance. Customs clearance that required, as a standard, two days were all of a sudden up, to five to 10 days. And then of course, as you said, logistics in general, shipping was uncertain. I mean, of course, also shipping lines were trying to optimize. There was a high level of insecurity about whether booked capacities on vessels were actually also used. Some of these pre-booked capacities were not at the port at the right time, so vessel schedules have been postponed making sure that these 50 containers that are supposed to come tomorrow are actually hitting the vessel schedule. But as I said, supply chain and logistics, was, with far distance, the highest distractors to productivity during that time.

7. How did manufacturers respond to disruptions in the supply chain?

What they do is try to improvise. Improvise means manufacturers usually build on their order and demand picture. They, of course, build a certain production schedule, and these production schedules needed to be changed and amended every single day. What they did is- And it doesn't matter what it is; let's say we stay in the shoes industry; you have 50 different models on a hundred production lines, and you are running out of material for 20 of them. So, they changed, production schedules, as I said, almost daily, and then reduced the number of products that were running before from 50 to 30, but extended the 30 models across a hundred lines, which means once materials came in and they were late for the other 20 models they did then probably 80 production lines for these 20 models to catch up production timing once materials were there. So, it was a lot of improvisation on the daily operations, a lot of disruption, a lot of manual work. Certain things that are standardized through systems were not able to be accomplished any more through system-based data and work. It was really then manual work, almost like going back 20 years ago where factory people were planning their production lines on an excel sheet on a daily basis. Things like that were required and it shows it still also shows the adaptability of the entire manufacturing base here to really quickly

trust and to a new situation and find workarounds whether they are very sophisticated or not. But it was really all about improvisation.

8. What changes were made by manufacturers to remain productive and competitive?

I do believe that competitiveness was at that time not the highest priority anymore. Now, I mean it was really about trying to limit the impact somewhat, right? If you really talk about, efficient and profitable operations, then I think we can eliminate that thought. Now, what they tried, is to make sure that they optimize given the hostile circumstances. That they try to optimize as good as they can to reduce the loss in all of these manufacturers have experienced huge losses despite the fact that they remained productive or remained operational. They all, during that period of time needed to really accept that they will traverse operational loss and the aim was really, just, “how can we, minimize that?”

9. How was the employment rate protected by the manufacturing industry?

Employment was not protected. There was a lot of tolerance to putting some of the very strict, labor laws. But the government also knew that big brands, that pay a lot of attention incorporate social responsibility of manufacturers, that's on the one hand, health and safety that we already talked about, but also employment standards. I can state that because that was still during my time, with [company] that, there were measures in place when you needed to reduce your capacity because the demand was going down. I talked to you as a consequence of lockdowns in, in Europe, north America, then early 2022, we faced issues with demands or factories needed to let people go. There are different ways of doing that. On the one hand, you have your newcomers. All these people that have a seniority, I believe, below two years. So, the first two years you can, I believe, extend a labor contract for one year and then for one more year. So, up to two years until they can get a permanent, labor contract

and then they are also much more. For these people with a seniority below two years they are the first ones that basically are out and people with a higher seniority are much better protected. So, factories started to release these people and often to be honest also, these people with a very low seniority; There's also a big share of people that are the advantage takers and are floating around in the industry. Utilizing the opportunity to train frequently employers to get a hundred thousand Dong more here or there. So, that's not, really the workforce that requires protection. It's really those above the two years and as I said on the big brands there were then suspension periods or, factories refrained from letting their people go because they knew business will rebound at a certain point of time.

They were establishing and developing work suspension plans where the government also made recommendations on payments, which were, I believe around 40, 50% of the minimum wage, but I also know that especially in the [company] framework and network of suppliers were paying those people that had to face the work suspension between 80 to a hundred percent of the minimum wage. So that's how the global magnifying glass helps in times like these, to make sure that there are responsible behaviors during challenging times. And again, this is not only something where brands and suppliers want to ensure, that they are safe in terms of what the public eye might comment. It's also, to a certain extent selfish because they all knew this is a temporary reduction of demand. This is, only a temporary situation. And they know they need their people again after two or three months once business will rebound. So, this is basically how it was handled here.

I know there are differences often between international, and local, enterprises. I think Vietnamese run operations were at times more rigorous and less sustainable than internationally owned enterprises, but this is only what I can tell you from the word of mouth here. We have only worked with

international enterprises. The level of social responsibility was very high and also a very high level of protecting their own workforce in these times.

10. How can the industry's resilience toward shocks, like the pandemic, be improved?

If you can answer this, this question ad hoc out of your pocket you can make this world a better place because when you look back over the last three or four years, the series of events seems to not end anymore. You know we've been out of the pandemic then the war in Europe started. Something that was unthinkable about a few, years ago. It's very challenging. I have to say personally also for me, I am quite concerned if I look into the next five to 10 years, based on the experience of the last, let's say, three, four years. What I believe is there needs to be much more uptake and after-action review globally, and also in Vietnam in terms of the pandemic: What have we done? What have we done well? What did not work so well? And you can't also only look at, this, isolated. You need to look at this also on a global scale and countries need to start working together. I know we are not only talking about the pandemic here, but it's one, one example. I mean, there are more. There are natural disasters. I mean we have for instance, a lot of manufacturing in Turkey and when you look at the scale of the damage and the impact the earthquake cost. Look at the now these devastating floods in Italy and it's the frequency of these things is increasing.

I believe what the industry can do is work very closely with their respective representations of chambers of commerce in their respective countries and with the governments. There are certain more countries specific risks and then there are global risks. There need to be very clear expectations raised in terms of how things can be improved in the case of another event of the dimension of that. I do believe very straightforward also you can't prepare yourself for everything. It's very difficult. I do believe manufacturers in the meantime have established, let's say at least this, thinking on their feet mentality. A bit of the

street smartness and this ability to really improvise and really think out of the box when it comes to standardized process. Once you take one ingredient out, it all falls apart.

They are already able to really think about very pragmatic solutions or things that can bridge a critical situation overall. As I said, concluding, I don't believe you can prepare for anything and it's a very vulnerable and fragile system, this whole supply chain, manufacturing industry. When we go through the entire interview you see how this all is interlinked in how fragile and vulnerable it is. The thing that manufacturers and industry need to continue doing is contingency planning. Prepare for the worst and certain things you can train and learn, and you can establish workarounds for political unrest, for natural disasters. It's a really challenging one and I believe many manufacturers are picking this up and do the best that they can to also be sustainable to a certain extent. Things like rooftop solar, making sure they are able to run operations. Probably also if they are cut off from electricity for a while. They, all have, wastewater treatments, they all are self-sustaining, for a certain period of time. I think these are all conclusions and developments out of these situations to become as strong as possible and make sure the impact of these series of events can be reduced to a minimum. But this, as I said, depends on, what dimensions we are talking about. There is a constant learning and contingency planning, and I think they are progressing very well and very far today, but there are certain things that you can't prepare yourself for.

Interview 5 (Translated to English)

CEO of a Vietnamese Shoe Company

1. Which socioeconomic conditions were impacted the most in the manufacturing industry during the pandemic?

The outbreak of Covid-19 not only had a severe impact on health but also negatively affected the economic development in countries worldwide.

National border closures and restrictions on the movement of goods led to a halt in production activities. Currently, the manufacturing sector relies heavily on imported inputs rather than domestic value-added and non-primary material localization. This has significantly reduced international trade and overall commercial activities.

Additionally, the application of scientific and technological advancements, especially e-commerce, has not been fully utilized, causing delays in accessing consumer markets and slower trade of goods, both for exports and domestic production. The increase in domestic consumer prices and higher export prices have reduced the competitiveness of Vietnamese goods.

2. How did the pandemic influence productivity of the industry?

Vietnam relies on imports for many raw materials and production inputs. Therefore, disruptions in the supply chain and higher import prices have affected production costs and prolonged waiting times for synchronized production.

The psychological impact of the pandemic on workers' well-being and concerns about contracting the disease and not being able to work have resulted in a shortage of skilled labor. This, in turn, has led to extended production times and reduced labor productivity. Moreover, the costs of caring for workers, such as COVID testing and treatment, have increased.

3. What measures have been implemented by the government to support businesses during the pandemic?

The government has prioritized providing support to businesses in terms of COVID vaccination. It has also implemented measures to organize on-site production activities. Additionally, support has been provided for meals of workers engaged in on-site work, with an allowance of 1,000,000 VND per person. The government has extended the deadline for insurance payments,

reduced interest rates, lowered taxes, and enhanced access to funding sources to provide timely and effective support to businesses, especially those involved in import-export activities.

4. How has the pandemic affected Vietnam as an international competitor for manufacturing?

Domestic businesses have faced numerous challenges in maintaining production activities amidst rapidly increasing production costs. Isolation requirements and social distancing measures have made it difficult for businesses to access customers, resulting in a lack of market demand for their products.

Therefore, achieving the goal of creating competitive products to meet the demands of export activities and economic growth has become a significant challenge. Furthermore, some regions' delayed response to the pandemic has led to the rapid spread of the disease, causing prolonged disruptions in the movement of goods, resulting in inventory mismatches (e.g., producing summer goods that can only be delivered during winter).

The Covid-19 pandemic has had negative impacts on people's lives, production, and business activities, and has severed global supply chains, increased production costs, and strongly affected global trade and economic growth. Alongside supply disruptions, rising energy prices have led to higher inflation rates in many countries, while economic growth remains challenging.

5. How were the effects of the pandemic counteracted by manufacturers?

Despite facing many challenges, the Covid-19 pandemic has also created opportunities if effectively grasped and utilized to emerge stronger after the crisis, providing workers with resilience and adaptability.

The most prominent aspect is the ability to apply digital transformation technologies in Vietnam. Businesses have utilized online sales channels and explored various product categories in the supply chain.

Companies have started focusing on online marketing, leveraging internet resources to research markets, partners, and build effective online commercial channels. They have also sought domestic suppliers for value-added and non-primary materials before returning to normal operations.

6. What supply chain disruptions caused by the pandemic affected the manufacturing industry the most?

The Covid-19 pandemic has comprehensively and deeply affected all countries around the world. Coupled with supply disruptions, rising energy prices have led to higher and more widespread inflation in many countries, while economic growth remains sluggish.

Supply chain disruptions make it difficult for goods to flow, lack of supply of raw materials for production, supply chain disruptions, goods have difficulty in circulation from production plants to places of consumption, from one province to another, from one region to another.

In the context of the Covid-19 pandemic, the weaknesses of the global supply chain have been exposed, from input materials and production activities to transportation and logistics services. In the supply chain, each stage is a link that links and interacts closely with each other, so rebuilding the coordination capacity of the entire supply chain ecosystem is not easy.

7. How did manufacturers respond to disruptions in the supply chain?

On the supply side, the anti-epidemic measures commonly used by countries are blockade, social distancing, stopping production and business activities, causing a sharp decrease in the labor supply. The disruption of manufacturing

activities in the global supply chain has rippled from industry to industry. People's income dropped sharply, leading to a decline in consumer demand, so it was necessary to consider the needs of consumers from time to time to allocate sources of goods.

On the other hand, self-adjust the design to create products using available raw materials to take advantage of, adjust the Work Design Method and product structure. looking for domestic suppliers to build an available distribution channel before reopening to normal.

8. What changes were made by manufacturers to remain productive and competitive?

Transforming models, reorganizing production and business to adapt to the pandemic in a streamlined manner and in line with product development according to new trends.

Focusing on training multi-skilled staff, this time is suitable for training and guiding soft skills for staff, managers, grasping technology solutions to be able to turn ideas into reality. business ideas become reality during this period. Transform production processes, products, accelerate transformation, shorten production and delivery times for fast adaptability.

Businesses and retailers have also made constant efforts to maintain their position and expand their online shopping channels with solutions that guarantee stable prices and fast same-day service.

9. How was the employment rate protected by the manufacturing industry?

No answer given.

10. How can the industry's resilience toward shocks, like the pandemic, be improved?

Enterprises had to diversify production, train workers to be multi-skilled, meet many types of orders, and adapt to market demands.

Besides maintaining the traditional market, it is necessary to find new output markets for businesses.

Consider cutting unnecessary administrative procedures and applying technology.

Streamlining human resources according to the new lean production model.

Appendix 3 – Interviews (Vietnamese)

Interview 5 (Original in Vietnamese)

1. Điều kiện kinh tế xã hội nào bị ảnh hưởng nhiều nhất trong ngành sản xuất trong thời gian đại dịch?

Dịch Covid-19 bùng phát không chỉ gây ảnh hưởng nghiêm trọng đến sức khỏe và còn tác động tiêu cực đến phát triển kinh tế ở các quốc gia trên toàn thế giới. Các chính sách đóng cửa biên giới quốc gia cũng làm cho hạn chế lưu thông hàng hóa thì bị ngưng trệ hoạt động sản xuất. Vì hiện tại ngành sản xuất chưa tự chủ động về VT-NPL nội địa hóa mà đang còn nhập khẩu, đã làm cho hoạt động thương mại giảm sút nghiêm trọng.

Bên cạnh đó việc ứng dụng khoa học công nghệ, đặc biệt là thương mại điện tử vẫn chưa được tận dụng triệt để khiến các mô hình kinh doanh xuất khẩu của các DN tiếp cận chậm với thị trường tiêu thụ, quá trình thông thương hàng hóa chậm, ảnh hưởng trực tiếp đến hoạt động xuất khẩu, kể cả sản xuất hàng nội địa.

Đẩy giá hàng hóa tiêu dùng trong nước lên cao, tác động tới chỉ số giá tiêu dùng; giá hàng hóa xuất khẩu tăng lên, làm giảm sức cạnh tranh của hàng hóa Việt Nam.

2. Dịch COVID-19 đã ảnh hưởng đến năng suất của ngành sản xuất như thế nào?

Việt Nam cũng nhập khẩu nhiều nguyên, nhiên vật liệu sản xuất từ các nước. Do đó, gián đoạn nguồn cung làm cho việc nhập khẩu nguyên liệu với mức giá cao sẽ ảnh hưởng đến giá thành, chi phí sản xuất, kéo dài thời gian sản xuất chờ đợi đủ đồng bộ.

Tâm lý của người lao động không an tâm, lo ngại khi đối mặt với dịch bệnh và không đi làm việc, nên bị thiếu hụt lao động có tay nghề. Nên thời gian sản xuất kéo dài và giảm sút về năng suất lao động, bên cạnh đó thì chi phí về chăm sóc của người lao động lại tăng cao (test covid, điều trị khi nhiễm bệnh...)

3. Chính phủ đã triển khai những biện pháp gì để hỗ trợ doanh nghiệp trong đại dịch

Thành phố đã ưu tiên hỗ trợ cho doanh nghiệp về tiêm Vacxin. Xây dựng các biện pháp tổ chức hoạt động sản xuất 3 tại chỗ.

Hỗ trợ suất ăn cho công nhân trong thời gian làm việc 3 tại chỗ 1.000.000 đồng/người.

Gia hạn thời gian đóng bảo hiểm, hạ lãi suất, giảm thuế, nâng khả năng tiếp cận nguồn vốn vay... để hỗ trợ nhanh chóng và kịp thời cho DN, đặc biệt là DN xuất nhập khẩu.

4. Đại dịch đã ảnh hưởng như thế nào đến Việt Nam với tư cách là một đối thủ cạnh tranh quốc tế về sản xuất?

Các DN trong nước cũng gặp khá nhiều khó khăn khi phải duy trì hoạt động sản xuất trong điều kiện chi phí sản xuất gia tăng nhanh chóng. Các yêu cầu cách ly, giãn cách xã hội làm cho các DN khó khăn trong tiếp cận khách hàng khiến lượng sản phẩm sản xuất ra không có nguồn tiêu thụ.

Vì vậy, việc thực hiện mục tiêu tạo sản phẩm để cạnh tranh đáp ứng nhu cầu cho hoạt động xuất khẩu và tăng trưởng kinh tế là một thách thức không nhỏ. Bên cạnh đó, nhiều địa phương đối phó với dịch chưa kịp thời làm dịch bệnh lan nhanh, gây nên tình trạng ứ đọng hàng hóa thời gian dài nên khi quay trở lại thì hàng hóa không còn phù hợp theo từng mùa vụ dẫn đến tồn kho (ví dụ sản xuất hàng mùa hè nhưng mùa đông mới giao hàng được).

Đại dịch Covid-19 tác động tiêu cực đến đời sống dân sinh và hoạt động sản xuất - kinh doanh, làm đứt gãy chuỗi cung ứng hàng hóa thế giới và tăng cao chi phí sản xuất, qua đó tác động mạnh đến thương mại toàn cầu và tăng trưởng kinh tế thế giới. Cùng với sự gián đoạn nguồn cung, giá năng lượng tăng đã dẫn đến lạm phát cao và lan rộng hơn tại nhiều quốc gia, trong khi tăng trưởng kinh tế vẫn khó khăn

5. Các nhà sản xuất đã chống lại tác động của đại dịch như thế nào?

Mặc dù nền kinh tế phải đối mặt với nhiều thách thức, tuy nhiên nhìn nhận một cách lạc quan, đại dịch Covid-19 cũng tạo nên các cơ hội tốt nếu biết nắm bắt và tận dụng để có thể vươn lên mạnh mẽ sau đại dịch, tạo cho người lao động sự đổi mới và thích ứng hoàn cảnh.

Điểm nổi bật nhất là khả năng ứng dụng công nghệ chuyển đổi số ở Việt Nam khi đại dịch đến, sử dụng kênh bán hàng online, mở ra nhiều ngành hàng trong chuỗi cung ứng.

DN bắt đầu chú trọng đến hình thức marketing trực tuyến, khai thác triệt để thông tin trên internet để tìm hiểu về thị trường, đối tác và xây dựng các kênh thương mại trực tuyến hiệu quả.

Tìm kiếm các NCC về VT-NPL trong nước hay là tạo ra những “sản phẩm có gì dùng đó”.

6. Sự gián đoạn chuỗi cung ứng nào do đại dịch gây ra đã ảnh hưởng nhiều nhất đến ngành sản xuất?

Đại dịch Covid-19 đã ảnh hưởng toàn diện, sâu rộng đến tất cả các quốc gia trên thế giới. Cùng với sự gián đoạn nguồn cung, giá năng lượng tăng đã dẫn đến lạm phát cao và lan rộng hơn tại nhiều quốc gia, trong khi tăng trưởng kinh tế vẫn khó khăn.

Những gián đoạn chuỗi cung ứng gây khó khăn cho dòng chảy hàng hóa, thiếu nguồn cung cấp NVL cho sản xuất, gián đoạn chuỗi cung ứng, hàng hóa gặp khó khăn trong lưu thông từ các nhà máy sản xuất sang các nơi tiêu thụ, ngay trong tỉnh này sang tỉnh khác, từ vùng này sang vùng khác.

Trong bối cảnh đại dịch Covid-19 đã làm bộc lộ yếu điểm của chuỗi cung ứng toàn cầu, từ nguyên liệu đầu vào, hoạt động sản xuất đến vận chuyển, dịch vụ hậu cần. Trong chuỗi cung ứng, mỗi khâu là một mắt xích liên kết và tương tác chặt chẽ với nhau, do đó việc xây dựng lại năng lực điều phối của toàn bộ hệ sinh thái chuỗi cung ứng là không dễ dàng.

7. Các nhà sản xuất đã ứng phó với sự gián đoạn trong chuỗi cung ứng như thế nào?

Về phía cung, các biện pháp chống dịch được các quốc gia sử dụng phổ biến là phong tỏa, giãn cách xã hội, dừng các hoạt động sản xuất - kinh doanh, làm cho nguồn cung lao động giảm mạnh. Sự đứt gãy của các hoạt động sản xuất trong chuỗi cung ứng toàn cầu đã ảnh hưởng dây chuyền từ ngành này sang ngành khác. Thu nhập của người dân giảm mạnh dẫn đến cầu tiêu dùng suy giảm, do đó phải xem xét nhu cầu của người tiêu dùng theo từng thời điểm để phân bổ nguồn hàng.

Mặt khác tự điều chỉnh thiết kế tạo ra sản phẩm bằng NVL sẵn có để tận dụng, điều chỉnh Phương pháp thiết kế công việc và cấu trúc sản phẩm. tìm kiếm các

NCC trong nước để xây dựng kênh phân phối sẵn trước khi mở cửa quay trở lại bình thường.

8. Những thay đổi nào đã được thực hiện bởi các nhà sản xuất để duy trì năng suất và tính cạnh tranh?

Chuyển đổi mô hình, tổ chức lại sản xuất, kinh doanh nhằm thích ứng với đại dịch theo sự tinh gọn và thích hợp với sự phát triển sản phẩm theo xu hướng mới.

Chú trọng đào tạo đội ngũ nhân viên đa tay nghề, thời gian này là phù hợp vào việc đào tạo và hướng dẫn kỹ năng mềm cho đội ngũ nhân viên, quản lý, nắm bắt các giải pháp công nghệ để có thể biến những ý tưởng kinh doanh trở thành hiện thực trong giai đoạn này. Chuyển đổi quy trình sản xuất, sản phẩm, thúc đẩy chuyển đổi nhanh, rút ngắn thời sản xuất và giao hàng để có khả năng thích ứng nhanh.

Các doanh nghiệp, nhà bán lẻ cũng đã không ngừng nỗ lực giữ vững vị thế và mở rộng kênh mua sắm trực tuyến bằng giải pháp cam kết giá bình ổn và phục vụ nhanh trong ngày.

9. Tỷ lệ việc làm được bảo vệ bởi ngành công nghiệp sản xuất như thế nào?

No answer given

10. Làm cách nào để cải thiện khả năng phục hồi của ngành sản xuất trước những cú sốc, như đại dịch?

Chuyển đổi mô hình, tổ chức lại sản xuất, kinh doanh nhằm thích ứng với đại dịch theo sự tinh gọn và thích hợp với sự phát triển sản phẩm theo xu hướng mới.

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bắt các giải pháp công nghệ để có thể biến những ý tưởng kinh doanh trở thành hiện thực trong giai đoạn này.

Chuyển đổi quy trình sản xuất, sản phẩm, thúc đẩy chuyển đổi nhanh, rút ngắn thời sản xuất và giao hàng để có khả năng thích ứng nhanh.

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10. Làm cách nào để cải thiện khả năng phục hồi của ngành trước những cú sốc, chẳng hạn như đại dịch?

Doanh nghiệp đã phải đa dạng hoá sản xuất, đào tạo công nhân để có đa tay nghề, đáp ứng được nhiều loại đơn hàng, thích ứng nhu cầu thị trường.

Bên cạnh duy trì thị trường truyền thống thì cần tìm các thị trường mới đầu ra cho doanh nghiệp.

Xem xét cắt giảm được thủ tục hành chính không cần thiết, áp dụng công nghệ.

Tinh gọn nguồn nhân sự theo mô hình sản xuất mới tinh gọn.