Economic Effects of the COVID-19 Pandemic on Europe's Supply Chain: Perspectives from Spain, Germany and Italy

Duoyuan Chen*

Department of Economics, University of Washington, WA. USA

*Corresponding author: chen1994@uw.edu

Abstract. In this article, the economic impacts of the coronavirus on Europe's supply chain will be investigated, with a particular emphasis placed on three countries. This article contains an extensive analysis of the significance of supply chain management to the economy of a nation. As a result, it examines the effects in great detail in the introduction, which also contains background information, the research objectives, and a literature review of the entire body of work. This paper continues on to discuss the data and methodology on which during the getaway there was a significant discovery on ways that the supply chain can be improved so that there will be more flexibility in dealing with an event such as a disaster. During the getaway, there was a significant discovery on ways that the supply chain can be improved so that there will be more flexibility in dealing with an event such Risk avoidance, target analysis, digital supply chain operations, supply chain planning, and supply chain risk management are some of the approaches that could be investigated in order to establish a setting that is more favorable for carrying on with life.

Keywords: Supply Chain; Corona Virus; Europe.

1. Introduction

The supply chain refers to the network that is utilized in the process of conducting business and is guided by the individuals and resources that are responsible for the sale of the product. It is necessary for there to be a network of events and people in sales that are related to one another in order to ensure that certain commodities and products reach the required individuals to meet the demand according to [1]. As a result, there must be sufficient supply in order to finish a supply chain. A supply chain is analogous to the circulatory system of a human body, with the product serving as the blood. Because of this, the product must travel through the appropriate channels in order to obtain the various nutrients to which it is entitled, ensuring that it will be in a healthier state once it reaches the final destination [2]. When the circulatory system encounters a barrier or an impediment, or when it does not proceed through the appropriate pathways, the end outcome is detrimental to the health of the entire body.

This scenario is analogous to the supply chain in that it must pass through the appropriate hoops in order for the products to be commercially viable; hence, the pandemic acted as a roadblock. It was a worldwide pandemic, and as a result, many countries were impacted by it [3]. Even those countries that reported fewer cases of the disease were still impacted, however, because the products could not be moved because they were contaminated with the disease. This caused the supply chain to face a barrier, which in turn caused an economic challenge. The Covid-19 virus emerged out of nowhere and adversely impacted the lives of people all around the world. In addition to its impact on global health, the virus has repercussions for the economy on a global scale.

There were no exceptions made for the countries in Europe. Countries such as Spain, Germany, and Italy were among those that were impacted by the sickness to a significant degree. Because of the effects of Coronavirus, the supply chain in Italy and Spain was disrupted, which in turn had an effect on the overall distribution of resources throughout the country [1]. The launch of Coronavirus had a detrimental effect on the supply chain networks in Italy, Germany, and Spain. The impact on the supply chain had a knock-on effect on the overall productivity of businesses in both countries.

The research entails answering these questions: What is the supply chain situation of Europe before and after the Covid pandemic? What are the main affected supply chain aspects affected by the pandemic? Can safety be applied in supply chain management if enough resources are provided? The objectives of the research include: To determine the supply chain situation if Europe before and after the Covid pandemic; To ascertain the affected areas of supply chain by the pandemic; To prove if safety can be applied in supply chain management if enough resources are in place.

This study will involve a quantitative research method in which the research will involve the use of numerical evaluation of the impacts coronavirus has had in the countries mentioned, the research will look at statistical analysis and comparison of the three countries from the time before the pandemic to the time after the pandemic, and the research will look at numerical evaluation of the impacts coronavirus has had in the countries mentioned [4]. The research will include a graphical representation of the effects that the pandemic has had on the country as a whole, as well as the complete network of supply chains.

Because it began in China, the Coronavirus pandemic came as a surprise to everyone. Very few people anticipated that it would only take a short amount of time to find a cure for the disease before it began to spread to other countries. Italy Due to the fact that Spain and Germany are located in Europe and have some of the highest economic standards available elsewhere in the globe, they were hit particularly hard by the virus. The virus was responsible for almost all of the alterations. The countries are well-known for their industrial prowess, and as a result, activities related to exporting are among the primary drivers of economic growth in the country.

Because the virus spread to schools and took a greater toll in terms of the number of lives lost, it caused a global pandemic. As a result, it compelled every single individual on the planet to prioritize their own safety over their financial interests. As a result of the lockdowns that were implemented in many countries, there were no flies entering or leaving any country due to the widespread fear that they carried a variety of infectious diseases. This caused a complete halt in commercial activity. Because the variants differed from country to country and population to population, the virus began to manifest itself in a variety of forms, each one more severe than the one that came before it. This made it more hazardous for people to come into touch with one another. Because of this, business came to a halt, and because transportation is a major contributor to the management of supply chains, the entire chain was forced to come to a halt as well. The only supply that could be made was only on a local level, and it consisted only of food; even international food aids were coordinated by a single body, and they had to take extensive safety measures.

As a global catastrophe, the pandemic did, in fact, have an effect on the growth of a great many countries, including the three that were listed [5]. Because the chain of supply demands frequents movement of items, those goods will come into contact with a variety of people. Since this was thought to be the most effective method of transmitting the virus, it was prioritized. Since there has been a significant amount of lifting off the lockdown, people still do not want to come into contact with different goods from different regions. As a result, the work that people have been doing is mostly domestic, and this is done to minimize the spread of emerging variants [5]. The effects of the pandemic are still being felt up to this day.

2. Data and Methodology

2.1 Data

Because of the widespread infection and the subsequent lockdown, the Corona virus has been responsible for some of the most catastrophic consequences on the economies of the most important countries in Europe. The economy of each of the three countries contributes to the economy of the world as a whole, and once any one of those economies begins to falter, the problem will reach a point where one country will have the goods ready to transport and the safety measures in place, while the other country will be more concerned with feeding its own population [5]. The effects of the coronavirus are far-reaching and are not wholly determined by the logistics.

In order to fulfill the requirements of supply chain management, it is necessary for the commodities to be constantly moving. As a result, the consumers have not changed, and they continue to make use of the products. Nevertheless, some of the nation's most valuable exports include the following: Italy is the world leader in the export of both motor cars and their component components, as well as refined oil; as a result, the Italian economy is supported mostly by goods that are either necessities or luxuries in the lives of its citizens. In addition, Spain is a major exporter of automobiles, packaged medicinal products, and accessories. Germany is the country that exports the most motor vehicles in the world, and the majority of them are luxury automobiles, SUVs, and sedans [6].

The three nations all produce the same kinds of goods for export, and those goods are a major contributor to the economy. As a result, very few nations were purchasing automobiles; rather, many of them were searching for alternative sources of food because there was a shortage of supply because the time of the lockdown was never communicated, and the majority of nations began helping people who were homeless. The following graph presents an examination of the economies of various European countries before and after the outbreak of the coronavirus. The bulue lines represent the economy before the covid pandemic and this showed that there was a steady flow in cash and this meant that the supply chain was doing well. The orange line shows the state of the countires with corona virus pandemic meaning how the economy was during,before it became a world wide pandemic, the flow decreased as peoeple became more aware of the pandemic and they bacame more concious of themselves hence dcreased flow. The light blue lines show the scenario after the pandemic and this was when it was considered as a worldwide pandemic meaning that peopel saw the real effect and decided to refrain from outside activities thus making them more concious hence the negative flow.

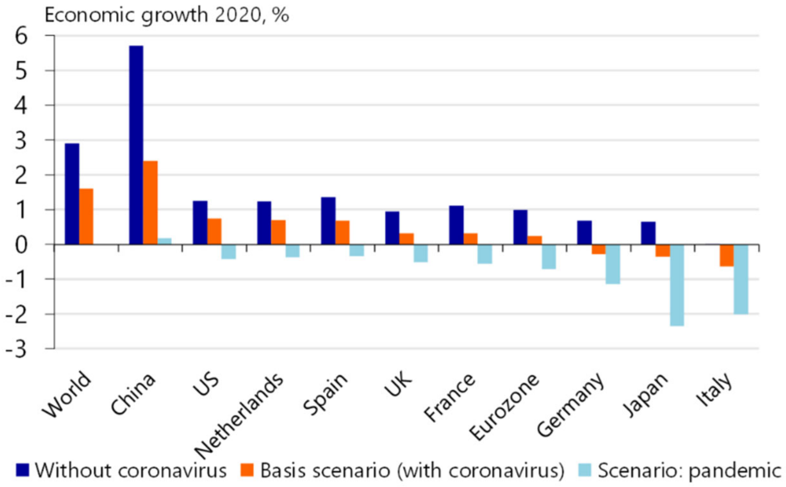

Figure 1. Eurozone Economy at the Brink of Recession
Sources: https://economics.rabobank.com/publications/2020/march/coronavirus-likely-to-push-eurozone-economy-into-recession/

2.2 Methodology

In order to arrive at conclusions on the effects of coronavirus, the quantitative analysis required the utilization of statistical data and presentation. The effects of coronavirus on the management of the supply chain can be measured by comparing the times before, during, and after the start of the coronavirus Pandemic. Coronavirus 19 was a worldwide pandemic that had a very high fatality index, and it was spread by contact with infected persons and equipment. This pandemic had an extremely high death index. Before the pandemic, the one thing that was preventing the buildup of the economy was based on the different economic conditions experienced by different companies; however, the supply chain and its flow were already in place. Additionally, it had become seasonal, and there were several patterns that could be observed over time.

The one difficulty arose when the coronavirus was introduced into the system, and the system was unable to determine what was happening or the pattern because it was a medical emergency that had no treatment, a high mortality rate, and also had no cure. In addition, there was no use for the virus. The entirety of the year 2020 was predicated on the fact that every nation in the globe was placed under lockdown, which meant that people were prohibited from traveling to locations using automobiles and performing any other activities that required a follow-up. This strategy for analyzing data will prove useful as a result of the data obtained and the assistance received from an external source.

3. Results

3.1 Risk Aversion Method

The hypothesis provides support for the proposition that people either seek out risks or try to avoid them. Since the first reports of Covid-19 in Europe, Italy, Germany, and Spain have all passed laws that are intended to help stop the disease's further spread [7]. The nation adopted risk avoidance strategies in order to stop the effects of the disease in the supply chain structure. The avoidance of risks was a strategy to prevent the health status of the country from being compromised in any manner and make it somewhat better. The pandemic was made more controllable and the disease was able to be tracked more effectively as a result of the countries adopting the lockdown and curfews seriously. The drawback of maintaining composure was that it caused a lot of business activity in the countries to be interrupted. When the ports and the airports are closed, the transport system is also closed, and as a result, there is no supply of commodities [7]. It is possible to save lives by avoiding the risk, but doing so comes at a financial expense. The countries' economies suffered, and as a result, they are working hard to get back on their feet now that the lawsuits have been resolved.

3.2 Targeted Analysis

The purpose of this research is to determine the extent to which Coronavirus 19 has affected the management of supply chains in the countries of Italy, Germany, and Spain [8]. The purpose of this analysis is to assess the severity of the impact on the supply chain in both countries as well as the differences between them. The scale of the problem that coronavirus caused in these countries was enormous, and the resulting disruption to supply chain management had a negative effect on the economies of those nations. Countries like Germany, which have the largest economies of the three, tended to be in the best position to take advantage of the situation because of this. Germany is the world's largest importer of automobiles, and the fact that German brands consistently rank among the most valuable in the industry has a direct impact on the country's economy [8]. Italy and Spain tie for third place on the podium since neither country is particularly powerful, but their economy was severely impacted because consumers primarily spent their money on food, and it was a challenging period for them because their primary export was automobiles.

3.3 Digital Supply Chain Operations

The epidemic had an effect on the distribution and allocation of different resources all across the world [9]. Therefore, adopting digital operations was something that had to be done by Italy, Germany, and Spain. Because of the digital operation's many benefits, the economy of the country was able to be sustained because companies were now able to conduct business and sell their wares without having to come into physical touch with the things they were selling.

The use of digital platforms has rapidly become one of the most widespread solutions to the issue. The first area where savings were realized was in product delivery; this was accomplished through the utilization of digital technologies such as drones and digital modes of communication such as holding meetings using zoom. The digital way has evolved to become one of the most dependable sources in the process of completing the supply chain. The customers could readily be reached, and as a result, they were able to verify the products in a virtual setting, and as a result, they were able to obtain their goods after they had been subjected to rigorous sterilization [9]. Because of the increased flexibility afforded by the digital era, business owners saw greater returns on their investments, and as a result, the economy began to improve after a short while.

3.4 Supply Chain Planning

Because of the virus, businesses began making plans to mitigate the impact it might have on supply chain infrastructure [10]. During the pandemic, the companies were forced to implement sustainable plans that would assist both countries in surviving the outbreak. These ideas have the capability of securing the economy as it is currently functioning as well as providing a sufficient amount that will be generated later on after the community has determined that it is more feasible. As part of the planning process, the nation devised methods by which it can generate additional economic activity without putting any unnecessary strain on the economy. This requires a significant amount of planning and the collaboration of multiple business strategists who should be able to agree on a course of action that will stimulate the economy [10]. Some of the ways in which things soon returned to their normal state are outlined here.

3.5 Supply Chain Risk Management

In light of the widespread epidemic caused by Coronavirus 19, it was important for the companies to implement risk management [11]. The impact of the virus on the commercial sector as a whole is lessened thanks to risk management practices implemented within the supply chain network. Risk management is more likely to save the current revenue gained by designing strategies that are well enabled to stop the outflow of cash and focus more on the inflow of cash. This is because risk management is more likely to save the current revenue received than any other factor. The risk management is similar as risk aversion. It is possible to accomplish this by fabricating something or opening a conduit through which an opposing flow of the events that one is required to be a part of can take place [11]. This is widely regarded as one of the most effective methods for finding a solution to a problem, as the individual under the seat will be the one to determine how the odds are played.

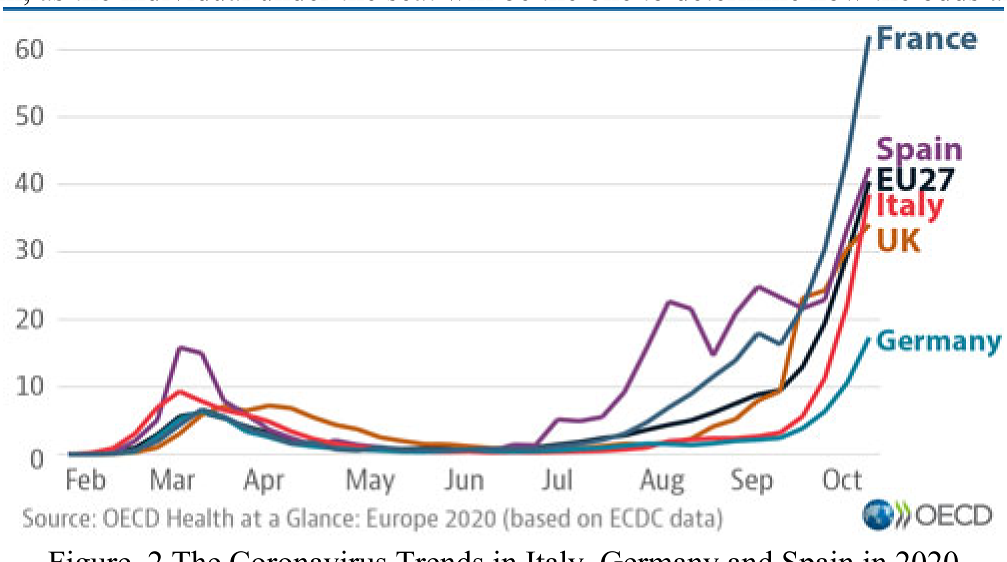

Figure. 2 The Coronavirus Trends in Italy, Germany and Spain in 2020

Figure 2 explains the pandemic trends int eh three countries of interest showing the rise in number of affected patients in the few months of the year 2020. There was a peak towards the end of the year and thus this explains the downfall of the supply chain in the vents after the virus.

4. Conclusions

It has been established that the economic stability of Spain, Italy, and Germany was significantly harmed as a result of Coronavirus 19. Because of this, the flow of products and resources from one region to another was disrupted, hurting several aspects of the economies of the impacted nations, such as supply chain distribution and various other economic sectors. Coronavirus was a roadblock to advancement, and the one thing that stood out about it was that it had symptoms that were unique to each of its varieties, making it impossible to treat. It was a respiratory condition that nobody knew much about, and it was rapidly spreading. The workers are given the ability to go forward toward achieving a consensus as a result of this. Because there was no economic activity taking place, most places were forced to close their doors as a result.

The heads of the organization decided that it would be nice to ensure that there was a reduction in wages because there were very few people working, particularly those who were working while at home. This was because the payments to landlords, banks, and anything else that has to be paid on a monthly basis had to stop. The government was forced to take action and provide a subsidy in order to assist the populace in acquiring food and putting it away for later use. The coronavirus did deal a significant blow to the supply chain because everything had to be halted, but there was a manner on which another occurrence like this could ever occur, and if it did, better procedures would be adopted.

The pandemic had two negative effects: the first was the mortality toll, and the second was the economic downfall and strain of the country it caused. In addition to this, the epidemic assisted in the discovery of potential solutions to a problem. The digital addition was a tremendous assistance in maintaining connections with both other businessmen and customers. As a result of the location of the warehouse in close proximity to the person's place of residence, it was simple to maintain the supply chain management system. There were local businesses that were active.

References

[1] Zekhnini, K., Cherrafi, A., Bouhaddou, I., Benghabrit, Y., & Garza-Reyes, J. A. (2020). Supply chain management 4.0: a literature review and research framework. Benchmarking: An International Journal.

[2] Min, S., Zacharia, Z. G., & Smith, C. D. (2019). Defining supply chain management: in the past, present, and future. Journal of Business Logistics, 40(1), 44-55.

[3] Cole, R., Stevenson, M., & Aitken, J. (2019). Blockchain technology: implications for operations and supply chain management. Supply Chain Management: An International Journal.

[4] Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. Journal of the Australasian Rehabilitation Nurses Association, 22(2), 27-30.

[5] Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. Higher Education for the Future, 8(1), 133-141.

[6] Agrawal, P., & Narain, R. (2018, December). Digital supply chain management: An Overview. In IOP Conference Series: Materials Science and Engineering (Vol. 455, No. 1,). IOP Publishing.

[7] Lilleholt, L. (2019). Cognitive ability and risk aversion: A systematic review and meta analysis. Judgment and Decision Making.

[8] Caldeira, C., De Laurentiis, V., Corrado, S., van Holsteijn, F., & Sala, S. (2019). Quantification of food waste per product group along the food supply chain in the European Union: A mass flow analysis. Resources, Conservation and Recycling, 149, 479-488.

[9] Coustasse, A., Kimble, C., & Maxik, K. (2020). Rethinking supply chain management strategies for ventilator related medications during CORONAVIRUS-19 pandemic in the United States. International Journal of Healthcare Management, 13(4), 352-354.

[10] Aryapadi, M., Chandra, V., Dekhne, A., Haddioui, K., Lange, T., & Venkataraman, K. (2020). Five actions retail supply chains can take to navigate the coronavirus pandemic. Mckinsey & Company Retail Practive (April), 1-7.

[11] de Bruin, Y. B., Lequarre, A. S., McCourt, J., Clevestig, P., Pigazzani, F., Jeddi, M. Z., ... & Goulart, M. (2020). Initial impacts of global risk mitigation measures taken during the combatting of the CORONAVIRUS-19 pandemic. Safety science, 128, 104773.