

Review of the Pandemic Process Logistics Sector

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ABSTRACT: With the industrial revolution, those who want to open up to the world in order to do business, their needs for the transportation sector have increased with the increase in production, and this has led to the transition from the way of transportation with animals to the way of transportation with machines. In the 1870s, the first truck transport was realized and the logistics sector developed rapidly in the world with the developing industry and took its current form. The fast-growing logistics industry was interrupted by the Covid-19 epidemic that started in Wuhan, China in 2019. With the measures taken during the pandemic process, the borders were closed and the production slowed down. With the slowdown in production, the closure of borders between countries and other measures taken, the logistics sector has also slowed down. The effects of the Covid-19 epidemic, which has not yet ended, still continue. The international logistics sector, in which developed countries have been integrated for many years, has recently started to develop in our country. Although Turkey has recently entered the logistics sector, it has made rapid progress. This article discusses how the measures taken for the Covid-19 Pandemic period, which is a global epidemic that has greatly affected the world in recent years, affect the logistics industry.

Keywords: Logistics Industry, Pandemic Process, COVID-19

JEL Classification: A10, A29

1. Introduction

The need for international transportation of the increased production with the Industrial Revolution has been the main reason for the development of the logistics sector. This need, which was tried to be met in more primitive ways, has produced more modern, faster and alternative ways with the development of technology.

The logistics sector has been affected by many global crises and has continued its development with the improving world economy. However, the current pandemic period has undoubtedly been a global crisis that brought the most negative effects to date, and its effects still continue on a global scale. Due to the uncertainties caused by the lack of a clear treatment for the corona epidemic and the unknown its exact cause, countries closed the borders as a precaution against the spread of the epidemic, workplaces decided to work from home and a curfew was imposed. All these have slowed down

production, trade, economy and development and brought them to a standstill. Since the logistics sector is one of the most important chain links of the production and trade network, it has taken its share from this pause.

In this article, the effects of all measures taken with the Covid-19 outbreak and the pandemic process on the logistics sector are examined.

2. COVID-19 Output

The Covid-19 outbreak was first seen on December 29, 2019 in the city of Wuhan, Hubei province of China. The first cases were seen with the same respiratory and lung disease in four people working in the animal market in the city of Wuhan, and then the same complaints were seen in other visitors to the animal market, and the animal market was closed on January 1, 2020. The world became aware of a new epidemic, Covid-19, when it was reported to the World Health Organization in January.

The first novel coronavirus (novel coronavirus) case originating from the city of Wuhan, Hubei Province of China, was reported as 2019-nCoV with laboratory confirmation by the Ministry of Public Health of Thailand on January 13, 2020. WHO named the disease caused by coronavirus COVID-19 on 11 February 2020 (Arslan and Karagül, 2020: 6). The Covid-19 pandemic has taken the world by storm in a short period of three months. Although coronaviruses (CoV) are known as a family of RNA viruses that usually show symptoms at the common cold level in humans, SARS-CoV and MERSCoV, which are members of the same family, have revealed that this family of viruses can cause more serious diseases. The name coronavirus began to be pronounced with the word "corona", which means crown in Latin, after the rod-like extensions on its surface were likened to a crown (WHO, 2020b; T.R. Ministry of Health, 2020b).

It is still unclear whether coronavirus, a virus that is transmitted from animals to humans, falls into the category of RNA, that is, harmful viruses that originate first in animals and infect humans. The fact that Covid-19 was first seen in the animal market adds this possibility to the possibilities. The known symptoms of coronavirus so far are; high fever, muscle aches, dry cough, weakness, difficulty in breathing and weakness. It is known that the symptoms usually begin to appear on the fourth day of the disease and progress differently until the fourteenth day. More rarely, some patients have headache, nasal congestion, general pain, loss of sense of taste and smell, diarrhea, redness in the body, and color changes in the fingers (WHO, 2020b).

Researches made; 80% of the cases survived the disease in a way that did not require serious medical intervention; however, in severe cases, the disease can turn into pneumonia and artificial respiration methods may be needed. Rest at home, antipyretic measures and fluid intake are important for those who have a mild illness. One out of every five people in contact with the disease has a severe illness. Especially individuals with chronic diseases such as diabetes, high blood pressure, lung and heart diseases and elderly people are in the risk group (Budak and Korkmaz, 2020: 65). In the process of these researches, the Covid-19 epidemic still continues, and the collection and research of data and findings continues.

3. Pandemic Process and Measures Taken

Covid-19 disease is transmitted through the respiratory tract. The disease is spread by splashing of droplets formed by sneezing and coughing. This shows that the virus does not hang in the air and cannot be transported long distances by air. With this information obtained, a one-meter social distance measure was taken first. Due to the population density in the cities, it was necessary to introduce new regulations and it was necessary to wear a mask due to the spread of the droplets formed by coughing and sneezing of the disease and the spread of contagiousness from the respiratory tract by contacting another person with these droplets. Gloves are worn as additional precautions, but only masks are required. Due to the fact that the disease could not be brought under control, people were obliged to stay at home and schools were closed first and then the distance education system was started. Many countries have closed their borders and flights have been stopped. Apart from the workplaces that provide compulsory needs, other sectors were closed and life in the world was interrupted for a short time.

It is emphasized that the experiences gained with the pandemic will have a significant impact on the understanding of urbanism, and it will pave the way for more human-centered urban planning in the future. With the approach, also called 'Epidemic Resistant City Planning', it is aimed to design living spaces that will minimize the risks of transmission of a possible infectious disease in the future and maximize health and safety. For example, there has been an awareness that buildings with crowded population, common entrance, closed narrow corridors and elevators will present additional risks, and that hygienic conditions should be provided frequently (Deniz and Kiraz, 2020: 149).

The "Cities for Global Health" project has been launched to discuss similar problems experienced by cities in different parts of the world, to see different approaches, and to

meet on a common platform to provide rapid information exchange during the pandemic process (Deniz and Kiraz, 2020: 149).

With the measures taken, the production sector has been interrupted, and there has been a significant decline in the world economy. The transportation sector is one of the trade areas that has been significantly affected by this global epidemic.

Table.1. Measures Taken by the Ministry of Internal Affairs of the Republic of Turkey Due to the Covid-19 Pandemic

Tarih	Alınan Önlem
16.03.2020	Umuma açık istirahat ve eğlence yerleri, SPA ve spor salonları halkın erişimine kapatıldı.
21.03.2020	65 yaş ve üstü ile kronik rahatsızlığa olanlara sokağa çıkma yasağı genelgesi yayınlandı.
21.03.2020	Koronavirüs salgını ile mücadele kapsamında oturmaya müsaade etmeden sadece paket servis yapılmasına yönelik lokantalarla ilgili ek genelge yayınlandı.
24.03.2020	Marketlerin çalışma saati ve marketlerde alışveriş yapan müşteri sayısı düzenlendi. Ayrıca tüm şehir içi ve şehirlere arası çalışan toplu taşıma araçları, geçici bir süreliğine araç ruhsatında belirtilen yolcu taşıma kapasitesinin %50'si oranında yolcu taşınması kararlaştırıldı.
29.03.2020	Ticari taksilerle ilgili genelge yayınlandı. İstanbul, Ankara ve İzmir illerinde kayıtlı ticari taksilerin trafığe çıkışlarında plakasının son hanesine göre sınırlamaya gidildi.
03.04.2020	Şehir giriş/çıkış ve yaş sınırlaması tedbirleri alındı.
05.04.2020	Başta hayvan barınakları olmak üzere park, bahçe gibi sokak hayvanlarının yaşam alanlarında tespit edilen noktalara düzenli olarak mama, yem, yiyecek ve su bırakılması, hayvanların yaşam alanlarının dezenfekte edilmesi ve vatandaşların bu konudaki hassasiyetlerinin arttırılması istendi.
10.04.2020	İki gün sokağa çıkma yasağı ilan edildi.

(Source: Deniz and Kiraz, 2020: 148)

4. Development of the Logistics Sector

Logistics has more than one definition. The logistics sector, which is a science and a sector, started to be studied after the article written by Peter Orueker in 1960 and formed its current place in people's minds. After the 1870s, with the industrial revolution and

the development of technology, there has been a rapid progress in the logistics sector. Although logistics was first defined as the transportation of raw materials and products from the first point to the point of consumption, over time, human transportation and the transportation of all other goods, plants, living and inanimate objects were included in the science of logistics and literally formed its current form.

The development of transportation brought the development of the economy along with it, which increased the interest of traders in transportation.

According to the World Service Gross Domestic Product (GDP) reports published regularly by the World Trade Organization (WTO), transportation maintains its place as an area of great importance in the service sector. According to the list prepared by the WTO secretariat; The ratio of Transportation Services, which includes business, communication (communication), construction and engineering, distribution, education, environment, finance and banking, health, culture and sports, tourism and travel, as well as logistics operations, is around 24% (Tanyaş vd. 2015: 49).

Table 2. Transport and Storage, Information and Communication Sectors GDP / GDP (in terms of production in Turkey–1998 Prices)

Yıllar –Türkiye	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ulaştırma ve Depolama GSYİH / GSYİH	11,7	11,8	12,0	12,1	12,4	12,4	12,0	12,2	12,4	12,4	12,3
Bilgi ve İletişim GSYİH / GSYİH	2,0	2,2	2,3	2,3	2,4	2,4	2,5	2,4	2,4	2,6	2,5
Ulaştırma ve Depolama, Bilgi ve İletişim GSYİH / GSYİH	13,7	14,0	14,3	14,4	14,8	14,8	14,5	14,6	14,8	15,0	14,8

(Source: Ministry of Transport, Maritime Affairs and Communications Statistics 2003–2013)

According to World Bank data, as a result of the comparison of 167 countries between 2012 and 2018, the logistics increase rates are 6.7 percent for 2012, 13.3% for 2014, 26.7 percent for 2016 and 53.3% for 2017. According to these data, the pace of progress of the world logistics industry has doubled in every two years within 6 years since 2012 and has made a rapid development.

5. Logistics Management

Logistics is the process of strategically managing the storage, movement and supply of materials, products and semi-products within the organization and within marketing channels in a way that maximizes profitability and provides low-cost orders (Christopher, 1998).

In recent years, with the opening of companies to the world, the globalization of companies has increased the need to minimize logistics costs and the importance of logistics management has increased.

Logistics management, in a sense, is the production of the order, the receipt of the order, the fulfillment of the order and the coordination of the distribution of the product, service or information. Among the activities expressed with the concept of logistics management:

- Transport
- Storage
- Inventory management
- Handling
- Order processing
- Packaging
- Buy
- Information management is included (www.igeme.org.tr/tur/pratik/lojistik.pdf).

6. Logistics Sector Review of the COVID-19 Pandemic Process

The Covid-19 epidemic, which started in Wuhan, China and quickly affected the world, is a disease with a high lethal effect, which is similar to the symptoms of pneumonia transmitted by respiratory tract, and for which a definitive treatment has not yet been found. The measures taken to reduce the effects and contagion of this disease have significantly affected the business world, and as a chain effect of a chaos, many sectors and accordingly the economy have regressed to a great extent. The Covid-19 pandemic has not only affected human health, but also greatly damaged the world order and international trade. One of these sectors and the most important one is the logistics sector.

As the Corona virus started to take effect in Europe in March 2020, a slowdown in trade started. Meanwhile, industrial production in China has almost come to a standstill.

While the measures, restrictions and quarantine practices taken in China and later all over the world caused the global health crisis to turn into an economic crisis, the analyzes suggested that the economic effects of the coronavirus pandemic would be more advanced than the Great Depression, which started in the USA in 1929 (International Transport and Logistics Service Providers. Association [UTIKAD], 2020: 9).

The uncertainty brought by the coronavirus pandemic can affect the supply chain, such as manufacturers, distributors, buyers, logistics service providers, warehousemen, etc. faced with a difficult process to foresee and plan due to delayed shipments, increasing logistics costs and delays in financial reconciliations. In this respect, both industrialized and developed countries, as well as developing countries whose economies depend on service sector revenues, were not exempt from the negative effects of the coronavirus pandemic; While developed countries had problems in the supply of raw materials for their industries, the economies of developing countries that depend on tourism and similar service sectors were also deprived of these incomes (Utikad, 2020: 9).

According to the World Trade Organization, international trade decreased by 11.9% in 2020 compared to the previous year. In 2020, the global GDP growth rate was negative at the rate of 4.4%.

The measure of closure of borders between countries caused delays in freight transportation and a slowdown in the logistics sector in general, with the time lost by drivers in quarantine and health screening measures on highways. In order to reduce this slowdown, Europe has started a green line application and crossings between European countries will be open, personnel scans will be a maximum of 15 minutes, and driving practices that are prohibited at night have been removed.

Considering the importance of road transport activities in meeting daily needs in North America, the governments of Canada, the USA and Mexico have cooperated in border procedures for border crossings of commercial vehicles and other vehicles used to meet basic needs. Road tolls were abolished in China, vehicle inspections were postponed. Belarus has accelerated the customs and transit procedures of cargoes with an EU-like green line application. Azerbaijan enabled Iran to maintain its connection with Russia and the whole world, with the "transit green line" implemented with Iran. According to the estimates announced by the International Road Union (IRU), the revenues of road freight companies will decrease by 679 billion USD in 2020; This amount corresponds to an 18% decrease in revenues compared to 2019. While it is estimated that the revenue loss in

Europe will be 125 billion USD, it is estimated that 1 billion USD in Saudi Arabia, 63 billion USD in the USA and 131 billion USD in China (Utikad, 2020: 13).

Due to the fact that 7 of the 10 most important ports in the world are located in China, maritime transport has experienced more decline compared to other transport routes. In line with the measures taken, many sea crews were stranded on the ships and at the same time, there was a container problem that caused the outgoing containers to return empty. The total volume loss for 2020 is estimated to be 17 million TEU.

The most important income of air transport is from passenger transport, while the remaining 20% is from cargo transport. With the suspension of passenger flights during the pandemic process, airline companies have produced solutions to increase this 20% rate by removing the seats of passenger planes and turning them into cargo transportation. Airline companies suffered a great deal of loss with the failure to achieve a 75% rate. More than half of the flight traffic was lost. At best, it is expected to reach the flight rates performed before the pandemic in 2025 and at worst in 2029.

According to the data of the International Air Transport Association (IATA), although airline companies have reduced their expenses by about 46%, their losses in 2020 are 118 billion USD, and the decrease in demand is 61% compared to 2019. The loss in 2021 is estimated to be 38.7 billion USD (Utikad, 2020: 18).

A large part of road freight transport has been transferred to railways. In this process, railway transportation was used more efficiently and did not experience any loss in transportation rates. However, there has been a decline in passenger transport. In 2020, rail passenger transport revenue loss is \$26 billion, while in 2021 it is \$19 billion.

Many fights must proceed successfully for the coronavirus pandemic to come to an end. The real challenge is to transport and distribute the vaccines to the final point under suitable transport conditions so that all this can happen. Providing access to potential vaccines for more than one billion people globally is as critical as developing the vaccine itself. There are four phases of clinical trials of these vaccines. According to the World Health Organization, these four stages are stated as follows; Phase one studies evaluate candidate vaccines for the first time in a small group of people to assess a safe dose range and identify side effects. Phase two studies evaluate candidate vaccines in a larger group of people to monitor for adverse effects. Phase three studies are conducted on a large population and in several countries. These are often the last step before a vaccine is

approved. Phase four studies are carried out after a vaccine candidate is approved and distributed to the general population (Çevik, 2021: 12).

In 2020, the UK produced the Biontech/Pfizer vaccine and said it was 94% effective. At the same time, he produced the Sinovac vaccine in China. When the final testing phase of vaccines, FAZ3, was completed, countries started to order vaccines. As of November 2020, many countries have committed to purchase a total of 7.48 billion doses of Covid-19 vaccines from 13 vaccine manufacturers before vaccines are released. More than half of these doses are estimated to go to high-income countries, which represent 14% of the world's population. The International Air Transport Association (IATA) estimates that the equivalent of 8,000 flights on a 110-tonne Boeing 747 cargo plane will be required for air transport, which will take two years to supply 14 billion doses of the vaccine, two doses each for every man, woman and child in the world. is doing. A recent study conducted by DHL and McKinsey companies found that 15,000 flights would be required for this transport, while it was emphasized that the need for cargo space would increase if syringes and protective equipment for medical personnel were included (Cevik, 202: 12).

The transport and distribution of the Covis-19 vaccine continues. Its positive impact on the logistics sector will become clear in the coming years.

7. Conclusion

The world order is based on human health and people's needs. The world economy is also shaped by the supply and demands of people. Even the advancement of technology is advancing in line with the needs of people. The interruption of human health and the fact that this is a global and long-term effect means that the existing established order and every area of life are also interrupted. The most current and still ongoing example of this is the Covid-19 disease. As a chain effect, the international trade and logistics sector has also taken its share from this global chaos.

As a result, after the spread of the coronavirus and affecting the countries of the world, a 13% loss in value was expected in the logistics sector, according to experts, but more revenue was lost than this estimate. While the income in maritime transportation was over 63% compared to previous years, this rate decreased to 59% according to the end of 2020 data. Air transport, on the other hand, has experienced the highest depreciation in the last 10 years and while the highest value rate was 14.40%, it decreased to 7.55% in the first three quarters of 2020. While rail transport depreciated by 1% in the first three quarters of 2020, it regained its value at the end of 2020 and remained stable. While these rates

vary between 22–24% in road transport compared to other years, they decreased to 16.19% in 2020.

Logistics has been the most talked-about sector of the Covid-19 global crisis in the business world, and plans have been made to minimize the impact of this crisis on the transportation sector and it has been implemented quickly. However, as in other sectors, the depreciation of the logistics sector could not be prevented, but it was tried to minimize this depreciation. In our life, which is a chain reaction, production cannot be achieved, as in trade, or if the production rate slows down and decreases, the number of goods to be transported decreases and logistics values decrease. Countries have experienced this chain reaction in the Covid-19 epidemic.

The data for 2021 has not yet been fully clarified. Considering the data at hand and the impact of Covid-19 on our lives, it takes about 10 years, according to estimates, for these data to become old and reach higher levels again.

Resources

Arslan İ. Ve Karagül, S. (Mayıs 2020) Küresel Bir Tehdit (COVID-19 Salgını) ve Değişime Yolculuk, *Üsküdar Üniversitesi Sosyal Bilimler Dergisi*, sayı:10, s:1–36, <http://doi.org/10.32739/uskudarsbd.6.10.67>

Christopher M., 1998, Logistics and supply chain management: strategies for reducing cost and improving service, *Financial Times/Pitman*, London.

Çevik A. Veli, *Üsküdar University Journal of Social Sciences*, 2021. Sayı:12, s:155–204.

Deniz ve Kiraz, J Biotechnol and Strategic Health Res. 2020; 1(Özel Sayı):147–151 COVID-19 ve Şehir Sağlığı.

<http://www.igeme.org.tr/tur/pratik/lojistik.pdf>

<https://lpi.worldbank.org/international/aggregated-ranking> Aggregated LPI 2015 adresinden alındı.

Prof. Dr. Tanyaş, Sıcakyüz, İnaç, Tan. (Şubat 2015), *İstanbul Lojistik Sektör Analizi Raporu Müsiad Araştırma Raporları*: İstanbul, Mavi ofset.

T.C. Sağlık Bakanlığı. (2020b). COVID-19 (SARS-CoV-2 Enfeksiyonu) Rehberi.

https://covid19bilgi.saglik.gov.tr/depo/rehberler/COVID-19_Rehberi.pdf adresinden alındı. (Erişim Tarihi: 02 Mayıs 2020).

T.C. Ulaştırma Bakanlığı Strateji Geliştirme Başkanlığı, Ulaştırma Bakanlığı Stratejik Planı (2009–2013).

Uluslararası Taşımacılık ve Lojistik Hizmet Üretenleri Derneği (UTİKAD), Lojistik sektörü raporu 2020 s. 9.

WHO. (2020b). Q&A on coronaviruses (COVID-19). <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-coronaviruses> adresinden alındı. (Erişim Tarihi: 3 Mayıs 2020).