



IMPLICATIONS OF COVID-19 PANDEMIC ON AIR CARGO TRANSPORTATION

Sencerhan AVCI

Istanbul Commerce University, Turkey

Özgür ÇENGEL

Istanbul Galata University, Turkey

Okşan KİBRİTÇİ ARTAR

Istanbul Commerce University, Turkey

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Abstract:

Air cargo transportation is a key determinant in meeting the demand for perishable goods, which is highly dependent on timely imports of inputs and exports of semi-finished or finished products as part of global supply and production networks. Airports, which are the doors of countries to the outside world, have been closed to passenger transportation, but never to cargo planes. Because the entry of the goods needed by the countries is important in terms of raw materials and needs. The aim of this article is to show the current situation of air cargo transportation in the world during the pandemic period and to reveal the importance of air cargo transportation in terms of supply chain.

Keywords:

Economic Impact, Air Cargo

1. Introduction

Air cargo transportation is a type of transportation that provides the national or international transfer of a product via air. Transported products generally include pharmaceuticals, technological products, food, machine parts, perishable products and products with high material value. Air transportation increases its percentage in the transportation sector day by day, as it provides fast and timely delivery of products.

With the effect of the globalizing world and the free market economy, air cargo transportation continues to increase its impact. Sectoral developments around the world make a significant contribution to production and consumption activities. In this context, the critical role of the aviation industry in social and economic development comes to the fore.

Air cargo transportation is a key determinant in meeting the demand for perishable goods, which is highly dependent on timely imports of inputs and exports of semi-finished or finished products as part of global supply and production networks. Due to the fact that the production is carried out in different regions in the world, as well as the increasing world population and the inadequacy of storage capacities; production and air cargo transportation continue to increase at the right rate.

The pandemic epidemic, which affected the world as of 2019, also had an impact on the supply chain. Production lines were interrupted by the effect of the pandemic, and each input negatively affected another input process. Countries have closed their borders with the effect of the pandemic and there have been impacts in the transportation sector, including border customs controls. In these periods, the transportation of medicine, food and technological products that countries need by air cargo has brought air transportation to the forefront in terms of sector.

2. Air Cargo Transportation

Air cargo plays a critical role in the transport of goods and in global trade. Air carriers transport US\$6.8 trillion worth of goods each year, representing 35% of the global market. As an example of the range of air cargo loads in a typical 24-hour period, international air cargo carries products such as 80,000 flowers, 140,000 tons of cargo, 200 racehorses and 1.1 million smartphones. Air cargo is usually transported in one of two ways. One of them can be carried on a cargo plane dedicated entirely to cargo transport, or on the lower decks of aircraft carrying passengers. (Bartle , Lutte, & Leuenberger, 2021)

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Air cargo includes goods sent from seller to buyer almost anywhere in the world, such as personal items, gifts, donations, samples for the product, equipment and live animals that are highly diverse in terms of physical properties, valuable and can be delivered quickly. (Moving Air Cargo Globally, 2013)

When we look at the benefits of transporting by air cargo, it can be said that relatively high value commodities tend to go by air despite the much higher cost. When we look at the reasons for the senders to send cargo by air; (Bañez, Lyall, & Walton, 2019)

2.1. Small Size Shipments

Because of their cost, these goods are relatively small, making air transport more convenient due to their size. For example, electronics, precision instruments, sophisticated industrial machinery, and other high-value commodities are also small-sized shipments in size and weight.

2.2. Time Sensitive Shipments

Some products are extremely time sensitive. These cover a wide range of perishable foods, pharmaceuticals, products that must meet very specific delivery dates and whose production will affect other inputs by air.

2.3. Security Based Shipments

High-value commodities, by definition, refer to air transport of goods that require more security against loss, damage or theft than their lower value. Airplanes often offer not only the fastest but also the safest way to move cargo from one point to another.

2.4. Shipments Containing Cost of Capital

High-value commodities consume large amounts of capital and impose high interest costs on their owners. These value-driven factors increasingly influence the model selection process of shippers, despite their impact on transportation decisions. Each factor and how it interacts with the others, it is necessary to first indicate how the modes of transport.

2.5. Shipments Considering Inventory Cost

Air cargo operations offer the advantage of fast, continuous supply, inventory levels and their costs can be reduced. This speed accelerates the delivery of products in terms of time rather than operating large storage facilities for certain products of a manufacturer to customers. By reducing inventory levels, a firm raises more capital, reduces inventory holding costs and reduces obsolescence cost.

In summary, air cargo provides the benefits of speed, reliability, safety and reduced inventory cost.

3. Air Cargo Transportation and Covid 19

The coronavirus disease caused by SARS-CoV-2 was first reported in December 2019 from Wuhan City of China. (COVID-19 – a global pandemic, 2020) COVID-19 is a respiratory infection caused by a new coronavirus called sars-cov-2. The COVID-19 epidemic continues as a situation that spreads very rapidly and negatively affects human life. (Team, 2020)

Currently, the origin of the coronavirus SARSCoV-2, which causes COVID-19, is unclear. All available evidence indicates that SARS-CoV-2 has a natural animal source and bats are the natural reservoir of the SARS-CoV-2 virus.

(XIAREWANA & CİVELEK, 2020). People affected by coronavirus may develop the following signs and symptoms within 2-14 days of exposure: fever, cough and shortness of breath or difficulty breathing. (World Health Organization, 2020).

Most people infected with the virus will experience mild to moderate respiratory illness and recover without special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions such as cardiovascular disease, diabetes, chronic respiratory disease or cancer are more likely to develop serious illness. The virus can be spread in the form of small liquid particles when coughing, sneezing, talking, singing or breathing from the mouth or nose of an infected person. These particles range from larger respiratory droplets to smaller aerosols. (World Health Organization, 2020)

In the aviation industry, the COVID-19 pandemic has severely impacted the airline industry, with travel restrictions and flight cancellations to mitigate the impact of the coronavirus. The aviation industry and airports suffered a great loss of income due to the inadequacy of air traffic and loss of income. The various steps taken by airlines to reduce losses include reducing capacity, parking or retiring aging aircraft, reducing compensation to executives and taking measures regarding voluntary departure early retirement programs for employees, reducing hiring new staff, minimizing unemployed aimed at reducing its impact. The main reason why the aviation industry is in financial trouble is the cancellation of domestic and international flights around the world to stop the spread of the coronavirus. Various travel restrictions have also been effective, as governments of different countries around the world do not issue visas to foreigners and close virus-affected areas. This caused an economic downturn in the aviation industry. When we look at the various segments in the airline industry; passenger airlines, cargo airlines, aircraft manufacturing companies, airport operating companies and companies providing catering and service are the main ones. Among these, the passenger airline division is one of the most severely affected segments as a result of the pandemic, and airport operators providing services to passenger carriers, aircraft manufacturers, catering and other input sectors have been affected in the same way. In this period, airline companies that wanted to reduce the economic impact of the pandemic aimed to reduce the impact of the crisis by carrying cargo with cargo planes and passenger planes.

In May 2020, the Federal Aviation Administration (FAA) granted an exemption for carrying cargo in the passenger cabin of aircraft carrying passengers. This exemption was initially granted until the end of 2020 and was later extended until the end of July 2021. As of June 2020, IATA stated that carrying cargo by passenger planes had carried out approximately 1300 flights. On July 14, 2020, the FAA issued another exemption: the Federal Aviation Regulation (FAR) provided the option to remove some or all of passenger aircraft's seats. (<https://www.faa.gov>, 2021)

As COVID-19 spreads rapidly, it will increase the use of passenger planes in cargo transportation in terms of supply chain day by day. This will increase the functionality of passenger aircraft at 54% of world air cargo capacity. Considering other cargo transports in addition to medical transports around the world, the pandemic created the need to use 2500 passenger planes for cargo operations. (BOEING, 2020)

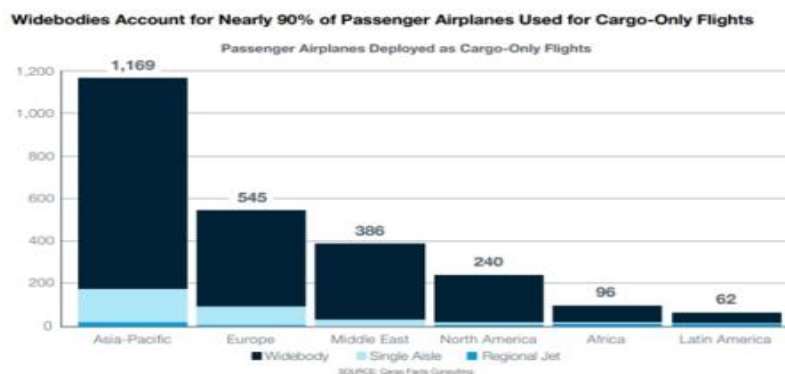


Figure 1: Regional Analysis of Passenger Aircraft in Cargo Transport (BOEING, 2020)

With the pandemic, passenger transportation processes have almost come to an end, but air cargo carriers continued to carry cargo in order not to disrupt the world supply chain in the processes of e-commerce and transportation of products arising from increasing global production. Data from the International Air Transport Association (IATA) show that in March 2020, air cargo tonne kilometers (CTK) flown increased by 4.4% compared to March 2019 pre-crisis. Air cargo data services firm CLIVE said air cargo volumes for April 2021 increased by 78% from April 2020 and 1% from April 2019. Insufficient air cargo vehicles and increasing demands in the world have increased cargo transportation costs. According to the 2020 IATA report, while the cargo revenue of airline companies was 102.4 billion dollars in 2019, it reached 117.7 billion dollars in 2020. For example, Lufthansa Cargo achieved the best result in its 26-year history and increased its revenues by 11%. (THUERMER, 2021)

The International Air Transport Association (IATA) released May 2021 data for global air cargo markets, showing that the strong growth trend in demand continues. While comparing the monthly results of 2020 and 2021, it also revealed the data for May 2019, taking into account the impact of COVID 19. Global demand, measured in cargo ton-kilometers (CTK*), increased by 9.4% compared to May 2019. Although the growth rate slowed slightly in May, demand increased by 11.3% compared to pre-COVID-19 levels (April 2019). However, air cargo outperformed global goods trade for the fifth month in a row. North American carriers contributed 4.6 percent to the 9.4% growth rate in May. Basic economic conditions and favorable supply chain dynamics remain supportive for air cargo. Related to this, global trade is increasing day by day and the cost-competitiveness of air cargo has improved compared to April container shipping. While the average price of air cargo before the crisis was 12 times more expensive than sea freight, it has now decreased to six times.. (https://www.iata.org, 2021)

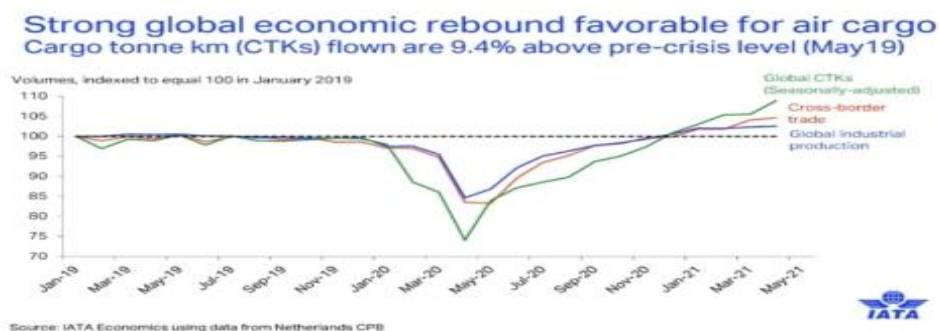


Figure 2: Economic Analysis of Air Cargo Transportation (https://www.iata.org, 2021)

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4. Conclusion

Air cargo transportation, which has a critical importance in terms of the global supply chain, is important in terms of transporting products with a short lifetime and providing reliable and fast delivery. With the effect of the globalizing world and the free market economy, air cargo transportation is increasing its impact day by day. Sectoral developments around the world make a significant contribution to production and consumption activities. In this context, the critical role of the aviation industry in social and economic development comes to the fore.

With the COVID 19 pandemic, which affected the world in 2019, many sectors were affected, and even production came to a standstill. One of the sectors affected by the deterioration of the world supply chain has been the aviation sector. As the spread of the pandemic became clear, countries first applied the social distance rules and closed even their airports with the increasing number of cases. Airline companies that primarily transport passengers in the aviation sector, catering companies that provide services to them, and companies that manufacture aircraft due to the uncertainty of the pandemic have also been affected.

Air cargo transportation, which is the fastest means of transportation for growing crops for people who are confined to their homes due to the deterioration of the supply chain, has come to the fore. Considering the needs of the countries and the export rates of the airports closed to passenger transport, cargo flights have almost never been closed. Although cargo planes are used effectively for the continuation of the supply chain during the pandemic period; The inadequacy of these planes has pushed airline companies to carry cargo on the seats of passenger planes. In addition, companies that have obtained national and international permits have continued to carry cargo by removing their seats, as well as carrying on seat. Considering the capacity of aircraft manufacturers to produce cargo aircraft, they could not keep up with the increasing demand for cargo aircraft.²

When the amount of air cargo transportation in 2019 and 2021 is compared, airline companies have increased both the amount of cargo and their revenues by using cargo planes and passenger cargo planes in the troubled period that started with the pandemic. The effective use of air cargo transportation is also of great importance in terms of transporting products such as vaccines and drugs that will affect the pandemic process. Air cargo transportation has also been effective in repairing the deteriorated supply chain, as well as its impact on the country's economies. With the pandemic, many airline companies have turned to air cargo transportation and even queued to buy cargo planes from aircraft manufacturers. When we look at the sectoral costs, the pricing, which is 12 times in price with maritime transport, has decreased to 6 times. In these periods when air cargo transportation comes to the fore, the growth rate of the sector is increasing day by day and it has a greater impact on the service of humanity.

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