

# The Impact of COVID-19 on Logistics in Modern Economies: A Case Study of the United Arab Emirates

Haroon Rashid

[amberharoon@outlook.com](mailto:amberharoon@outlook.com)

## Abstract

The COVID-19 pandemic has significantly disrupted global logistics networks, presenting both challenges and opportunities for economies worldwide. The United Arab Emirates (UAE), a key international trade hub, faced a series of logistical disruptions caused by supply chain bottlenecks, labor shortages, and increased transportation costs. This article provides an in-depth analysis of the impact of COVID-19 on the logistics sector in the UAE, including disruptions to supply chains, changes in transportation methods, and the resultant modifications in logistics strategies. The UAE government and corporate entities undertook multiple interventions to adapt, focusing on digital transformation and collaboration to sustain essential supply chains. This study also presents recommendations for future resilience in logistics, emphasizing the importance of building diversified and adaptable logistics networks. The findings of this case study highlight critical lessons learned, including the role of technology and resilience planning in mitigating the effects of future global disruptions.

**Keywords:** COVID-19, Logistics, Supply Chain Disruption, United Arab Emirates, Transportation Methods, Government Interventions, Corporate Adaptations, Supply Chain Resilience, Digital Transformation, E-commerce.

## I. Introduction

The logistics sector is often regarded as the lifeline of modern economies. Its efficiency is a determinant factor of a nation's ability to sustain trade and keep businesses running smoothly. The onset of the COVID-19 pandemic in late 2019 brought about unprecedented challenges to logistics globally, and the United Arab Emirates (UAE) was no exception. As a hub for international trade, the UAE's logistics sector faced both obstacles and opportunities during the pandemic, forcing rapid adaptation. This article explores the impact of COVID-19 on logistics in the UAE, focusing on both disruptions and advancements while utilizing qualitative and quantitative data [1].

## II. Disruption of Supply Chains in the UAE

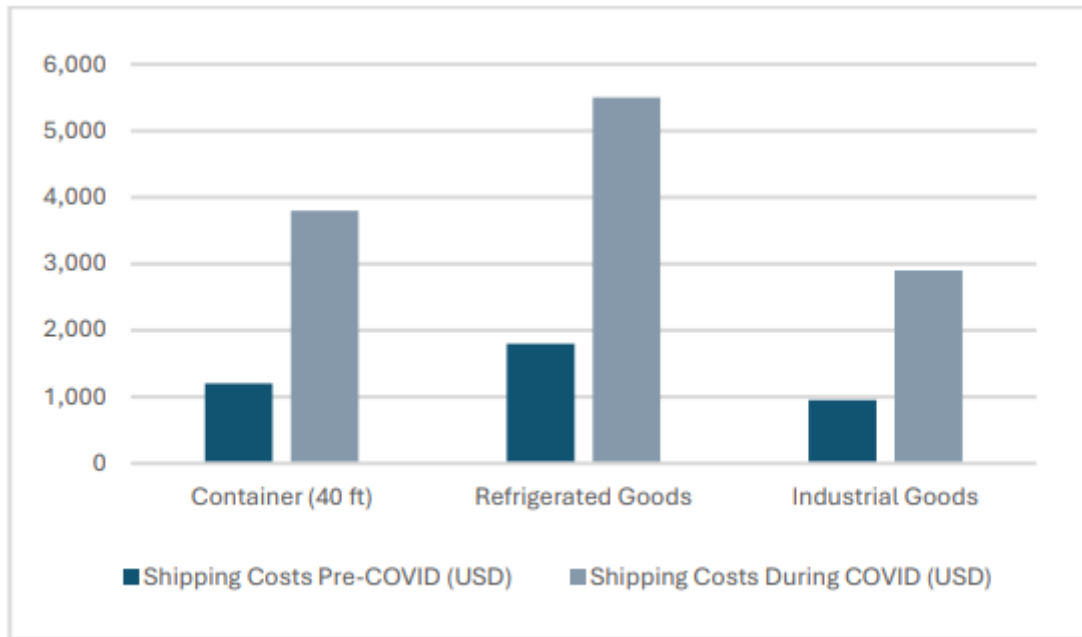
### a. Initial Impact of COVID-19 on Supply Chains

The spread of COVID-19 led to an unprecedented disruption in the supply chain, exposing vulnerabilities in logistics networks globally. The UAE, which relies heavily on imported goods, experienced significant delays in supply chains. Ports such as Jebel Ali and Khalifa were impacted by

lockdowns, labor shortages, and the rerouting of cargo vessels. These disruptions also delayed critical imports such as food and medical supplies, especially during the peak months of the pandemic.

A key example of supply chain disruption was the blockage at global chokepoints, including the Suez Canal. For the UAE, delays in these maritime routes led to surging shipping costs and unpredictability in the flow of goods, which forced stakeholders to adapt to avoid severe economic impacts [2].

**Table 1: Summary of Shipping Costs in the UAE (2020-2021)**



**Table 2: Labor Availability in Warehousing Facilities in Dubai (2020)**

<b>Item Type</b>	<b>Shipping Costs Pre-COVID (USD)</b>	<b>Shipping Costs During COVID (USD)</b>
Container (40 ft)	1,200	3,800
Refrigerated Goods	1,800	5,500
Industrial Goods	950	2,900

(Source: Dubai Logistics Survey 2020 [6])

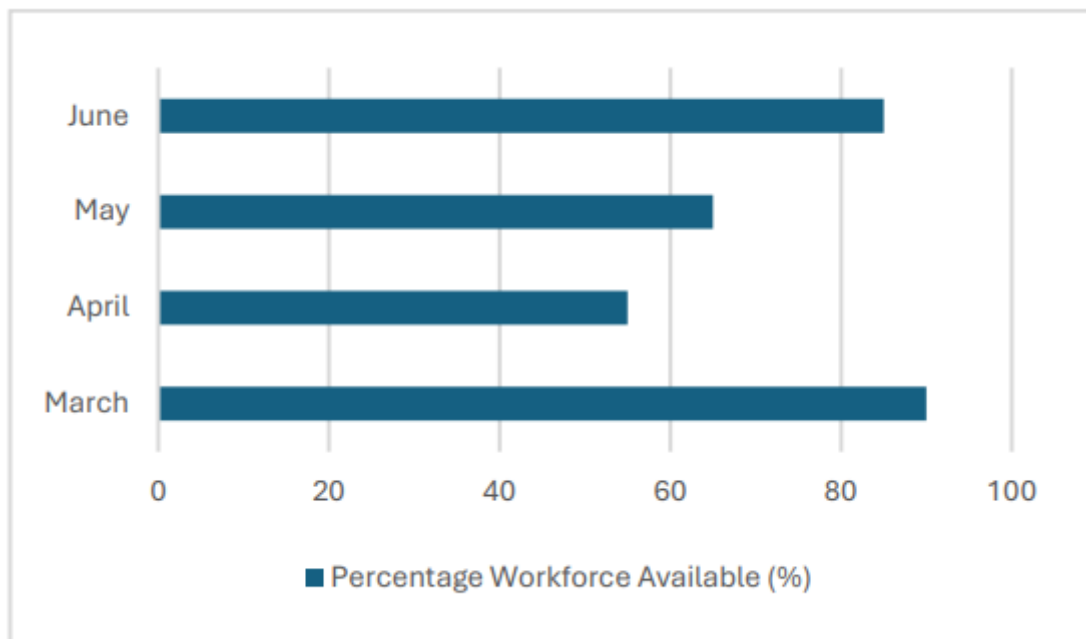
**b. Prolonged Disruptions and Labor Availability**

The pandemic-induced lockdowns also highlighted labor shortages across the UAE's logistics sector. Strict curfews limited the workforce's ability to operate, causing backlogs in warehousing and transportation operations. Furthermore, COVID-19 outbreaks in workforce-dense logistics operations resulted in partial or full shutdowns of warehouses for extended periods.

In Dubai's industrial zones, where labor-intensive manual processes play a major role, the absenteeism rate was as high as 25% during the peak of COVID-19 [5].

Consequently, companies were forced to reconfigure their labor arrangements, utilizing smaller teams while focusing more on automation and remote management solutions.

**Table 2: Labor Availability in Warehousing Facilities in Dubai (2020)**



Month	Percentage Workforce Available (%)
March	90
April	55
May	65
June	85

(Source: Dubai Logistics Survey 2020 [6])

### III. Altered Transportation Methods

#### c. Changes in Transportation Logistics

The restrictions imposed on passenger flights had severe repercussions on air freight logistics. With reduced passenger flights, which traditionally carried a significant portion of air cargo, air freight capacity dropped drastically. As a result, freight costs rose steeply, and key routes faced delays. The decrease in cargo volumes at Dubai International Airport dropped air freight volume by nearly 30% during the early months of 2020 [4].

In response, cargo operators leveraged larger freighter aircraft, while the UAE government relaxed regulations to allow cargo-in-cabin flights for essential goods such as vaccines and medical supplies. Etihad Cargo and Emirates SkyCargo worked round-the-clock to mitigate the losses while addressing global demand for personal protective equipment (PPE).

#### d. Role of Logistics Services in Emergency Supply Chains

The pandemic triggered major changes in the UAE's cross-border logistics landscape. With border closures and new customs restrictions, trade flows became more unpredictable, affecting the import and export activities of the UAE. However, the government took proactive measures to mitigate these challenges by ensuring green channels for essential goods and speeding up customs clearance for critical supplies.

The UAE's collaboration with international partners also played a crucial role. A strategic alliance with India was developed, where both countries set up "air corridors" to ensure the steady supply of medical equipment, drugs, and vaccines. Dubai International Airport was transformed into a major hub for vaccine distribution, with Emirates SkyCargo facilitating millions of doses of COVID-19 vaccines as part of the World Health Organization's COVAX initiative [9].

### III. Impact on Logistics Strategies

#### a. Short-term Adjustments in Logistics Strategies

The need to adapt to COVID-19 challenges accelerated technological adoption in the logistics sector of the UAE. Contactless transactions and electronic documentation saw rapid adoption. Leading companies like DP World implemented blockchain-based systems for efficient and secure documentation, helping the logistics sector adapt quickly and reduce reliance on manual processes.

#### b. Long-term Strategic Changes

A striking feature of the pandemic was the sharp rise in e-commerce, which required swift and agile last-mile delivery solutions. Logistics companies found themselves under pressure to adapt to the soaring demand for online shopping deliveries. The UAE witnessed a rise in the development of last-mile delivery solutions, incorporating features such as real-time tracking and digital payments.

The UAE's National Emergency Crisis and Disaster Management Authority (NCEMA) promoted the use of digital platforms for logistics. Companies like Aramex, which initially struggled with increased demand, shifted their focus towards advanced digital tracking and route optimization solutions to better serve consumers [8].

### IV. Responses by Governmental and Corporate Entities

#### a. Governmental Interventions in Logistics

The UAE government took proactive measures to ensure the continuity of logistics during the pandemic. Initiatives such as green channels for essential goods, customs clearance facilitation, and the relaxation of air cargo regulations were implemented to address the challenges faced by the logistics sector.

**b. Corporate Adaptations and Innovations**

While COVID-19 disrupted the logistics sector, it also opened new opportunities, with industry players rethinking strategies to increase resilience and agility. Many logistics players in the UAE turned towards localized sourcing, reducing dependence on long global supply chains. Companies like Agility and Al-Futtaim Logistics began working more closely with regional partners to ensure the continuity of essential services.

Warehouse automation became another significant opportunity. Many companies, previously reliant on manual handling processes, began investing in advanced warehouse management systems (WMS), robotic sorting, and automated inventory management tools to handle increased e-commerce orders and labor shortages.

A survey conducted by the Dubai Chamber of Commerce in 2021 showed that over 60% of logistics companies planned to invest in automation technologies to reduce dependence on manual labor and prepare for potential future disruptions [10].

**V. Recommendations for Future Resilience**

**a. Building Resilient Supply Chains**

The major lessons learned include the need for a diversified logistics strategy that reduces overdependence on any single mode of transport or international supplier. Furthermore, the importance of investing in technology became evident, with those companies who had previously digitized their operations experiencing fewer disruptions than others.

**b. Enhancing Adaptability in Logistics Systems**

Another key takeaway for the UAE was the importance of establishing crisis-response frameworks in logistics, such as pre-arranged alliances for cargo-sharing and leveraging international collaboration during emergencies.

**Table 3: Lessons Learned and Strategic Responses to COVID-1G**

Key Challenge	Strategic Response
Air Freight Cost Increases	Cargo-in-cabin Solutions
Labor Shortages	Increased Automation and Shift Scheduling
Cross-Border Disruptions	Green Channels for Essential Goods
Increased E-commerce Demand	Investment in Last-Mile Digital Solutions

(Source: UAE Chamber of Commerce Report 2021 [11])

**VI. Conclusion**

The COVID-19 pandemic has reshaped the logistics sector in the UAE, emphasizing the importance of adaptability, technology, and resilience. Despite the challenges of labor shortages, supply chain disruptions, and increased shipping costs, the UAE has emerged stronger through rapid adaptation, government support, and an increased focus on technological innovation.

The acceleration of digital transformations, increased collaboration with international partners, and a focus on localizing supply chains have all contributed to ensuring the continuity of trade and supply. Moving forward, these lessons will not only shape the future of logistics in the UAE but also establish a new standard for logistics resilience globally.

## References

1. UAE Ministry of Economy, "Annual Economic Report 2019," 2019. [Online]. Available: <https://www.moec.gov.ae/en/-/annual-economic-report-of-2019>
2. B. Sundarakani and O. P. Onyia, "Fast, furious and focused approach to Covid-19 response: an examination of the financial and business resilience of the UAE logistics industry," *Journal of Financial Services Marketing*, vol. 26, pp. 237–258, 2021. <https://link.springer.com/article/10.1057/s41264-021-00118-9>
3. Drewry Shipping Consultants, "Disruptions and resilience in global container shipping and ports: the COVID-19 pandemic versus the 2008–2009 financial crisis," *Maritime Economics C Logistics*, vol. 23, pp. 179–210, 2021. <https://link.springer.com/article/10.1057/s41278-020-00180-5>
4. Dubai Statistics Center, "Dubai Economy Grows 2.1% in H1 2019," 2019. <https://www.dsc.gov.ae/en-us/DSC-News/Pages/Dubai-Economy-Grows.aspx>

[1] Oxford Business Group, "Transport C Logistics, from The Report: UAE: Dubai 2019," 2019.

<https://oxfordbusinessgroup.com/reports/uae-dubai/2019-report/transport-logistics>.

[2] Oxford Business Group, "UAE: Dubai Transport C Logistics Research C Analysis 2019," 2019.

<https://drupal.oxfordbusinessgroup.com/uae-dubai-2019/transport-logistics>

[3] DP World, "Annual Report 2019," 2019.

<https://www.moec.gov.ae/documents/2012/1/302471/statistical-report-2019-en.pdf/97f1c8aa-8629-5a3b-dc86-16a1a942c940>

[4] National Emergency Crisis and Disaster Management Authority (NCEMA), "COVID- 19 and the Rise of E-commerce in UAE," 2021.

<https://www.moec.gov.ae/en/-/logistics-en>

[5] Emirates SkyCargo, "Vaccine Distribution Initiatives," 2021. <https://www.moec.gov.ae/en/-/logistics-en>

[6] Dubai Chamber of Commerce, "Investment in Automation by Logistics Companies," 2021.

<https://www.moec.gov.ae/en/-/logistics-en>

[7] UAE Chamber of Commerce, "Strategic Responses to COVID-19 Challenges," 2021.

<https://www.moec.gov.ae/en/-/logistics-en>