

# Investigating the Impact of COVID-19 on the Logistics Sector: A Case Study on Egypt

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## Abstract

**Purpose:** This paper aims at investigating the impact of COVID-19 on the logistics sector activities in Egypt as the COVID-19 widespread is considered as a global shock. Its impacts are being soaked up internationally in terms of business activities, economy, individual aspects, and logistics activities in different ways. **Design/Methodology/Approach:** The study was conducted based on semi-structured interviews with different stakeholders in the Egyptian logistics industry, in addition to published reports and studies analyzing the COVID-19 impact on the logistics sector. **Findings:** The paper highlighted the barriers and obstacles that are faced by the stakeholders and practitioners in the field of logistics through COVID-19 lockdowns to meet their customers' demand and restore balance for their portfolios. It concluded with a roadmap providing some suggestions and recommendations to strategize logistics practices and achieve sustainable logistics performance.

**Research limitations/implications:** Stakeholders in the logistics field need to implement strategies and policies for crisis management, renovating production operations plans, and satisfying consumer needs. Upon that, the road map will show the gap for future researchers and industrial managers to upgrade their long-term planning to face any unconditional situations in the upcoming years.

**Originality/Value:** The paper provides evidence on the negative influences of the logistics industry with a noticeable shrink in manufacturing, imports and exports, transportation, distribution, freight forwarding, warehousing, and overall international trade due to disruptions of the whole supply chain network and lockdowns in most of the troubled countries.

**Keywords:** COVID-19, Logistics, Supply chain, Economy.

**Category:** Case Study.

## 1. Introduction

COVID-19 highly influences the management of the global supply chain and the whole logistics

processes; as countries apply hygiene practices to all trade flow, to prevent the spread of the virus. To control the notable disruptions that happened; the industries getting affected, stakeholders have to take precautions and actions supporting businesses, as the outbreak end period is unconscious. Operators are responsible to adjust business procedures while developing long-haul strategies, to stabilize the country's practices in globalization within significant concern to the epidemic (Zhang and Hayashi, 2020).

The main purpose of this paper is to investigate the impacts of the Corona-virus outbreak on the logistics activities and supply chain specifically in Egypt. This paper illustrates various issues of COVID-19 such as its impacts on the global economy, supply chains, and logistics activities by reviewing previous studies and considering operators' opinions in these fields. The contributions of this paper are first, it will discuss the current situation of global economy and logistics activities performance. Therefore, the impacts of COVID-19 will be clear. Secondly, it will focus on the Egyptian situation as a case study. Finally, analyzing the data and predictions of the operators to show the main impacts of COVID-19 on all logistics activities. In this paper, the introduction is followed by the ongoing state of Coronavirus through the literature review, followed by the methodological section leads into the analysis and findings, and the paper closes with a roadmap and recommendations for further research.

## **2. Literature Review**

The literature reviewing an illustration about COVID-19 and how the world reacted to this pandemic. Then it highlights the impacts of the virus on the economy and global trade especially in Egypt as well as its impact on the employment level. Moreover, it illustrates the impact of COVID-19 on the logistics and supply chain sectors by focusing on specific activities such as transportation, distribution, imports and exports, warehousing, and inventory management to investigate the impact of COVID-19 on the logistics and supply chain industry, especially in Egypt.

### **2.1. *Coronavirus COVID-19***

Starting from 2019, COVID-19 a severe disease from SARS-COV2 species has changed the world dramatically. Primarily, Corona Virus was localized in China only, later on, it spread across the whole world which led to a total lockdown. The World Health Organization (WHO) first announced COVID-19 as a world health urgent situation in January 2020 while on March 11 it officially revealed a pandemic (Y. Yang et al., 2020).

This requires countries to implement public health measures such as social isolation and curfews to minimize the virus spread that led to a huge number of people dying, lower the efficiency of logistics activities in all sectors, a severe decline in productivity among firms, greater uncertainty, and fear in all countries (A. Brodeur et al., 2020).

Moreover, due to countries' lockdown and imposed restrictions, it affects all events and business sectors noticeably and discourages international trade practices. Consequently, almost all firm's profits declined to a great extent, universal stock markets lost about US\$6 trillion in one week from 24th to 28th of February, many import & export-oriented countries were severely affected because of their supply chains disruption and it also has a severe negative impact on the world economy (Ozili and Arun, 2020)

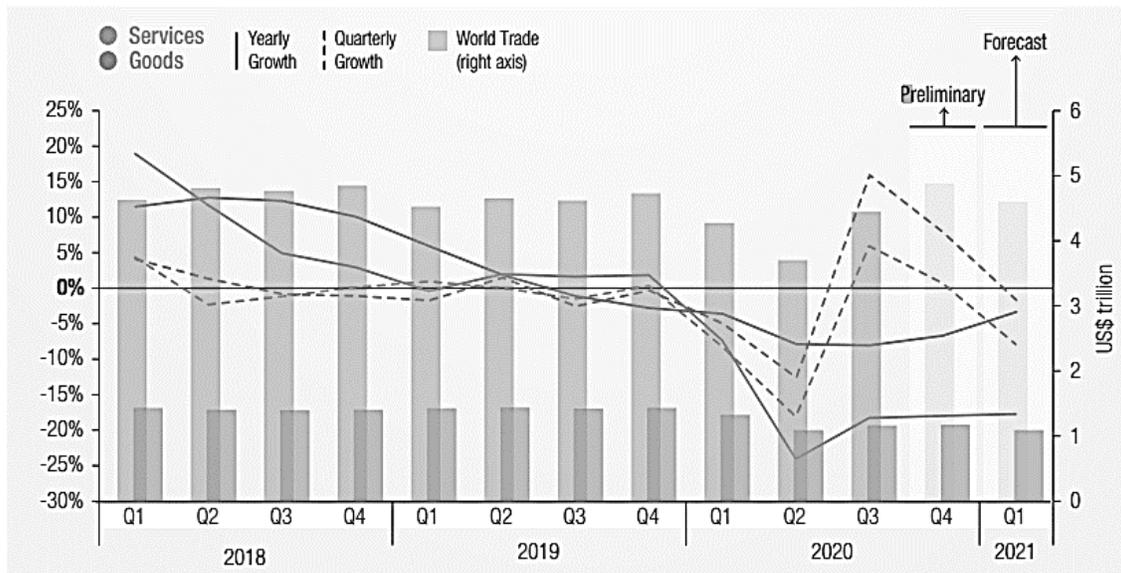
### **2.2. *COVID-19 impact on economy and trade***

Nowadays we are living in a globalization era, as the economies of all nations are connected

through exports, imports, expenditures, financial markets, facilities, technology, etc. As a result, world lockdowns, quarantine restrictions, curfews, etc., caused massive economic shocks, a crisis such as a severe decline in world GDP, global trade deficits and inflation rate, and human suffering such as death, layoffs, income declines, and unemployment (Islam and Mueyed, 2020).

Regarding business activities, COVID-19 affects all firm’s revenues and strategies to a great negative extent. Organizations started to fire off their employees to maintain revenues, also they changed their working regime by working from home through online applications instead to maintain social distance. Moreover, all firm’s supply chains are exposed to numerous risks such as changing production strategies, changing suppliers and shifting warehouse locations, changing transportation routes, and so on (J. Jackson et al., 2021).

Accordingly, COVID-19 affects global trade in goods and services especially during the first half of 2020 with a drop in value of about 15 percent. Then it began to recover in quarter 3 and 4 in 2020 as global trade in moving goods grew by about 8 percent as shown in the following figure:



**Figure 1:** World trade in goods & services  
 Source: (UNCTAD, 2021)

In particular, in Egypt, all economic activities slowed down as a result of the lockdowns. The Purchasing Managers’ Index (PMI) diminished to 38.3 during the period April to June 2020, its lowest level on record. The employment rate turned down by 2.7 million during the same period, pushing unemployment to 9.6% from 7.7% the previous quarter, with job losses, on the whole among informal employees, reported mainly in retail and wholesale trade, manufacturing, touristry and transport. Also, foreign reserves dropped sharply due to large-scale capital discharges in the COVID-19 crisis, in addition to the fall in Suez Canal revenues, and merchandise exports. The foreign exchange depreciated marginally from LE15.7/US\$1 in February 2020 to just below LE16/US\$ as of August 2020. (TheWorldBank, 2020). Consequently, many countries in The Middle East and Central Asia requested International Monetary Fund (IMF) financial aid especially in Egypt (IMF, 2020).

### 2.3. *Impact of COVID-19 on Logistics activities and supply chain*

The impact of COVID-19 on the supply chain has been quite negative, as a result of the expansion

of the trade has slowed down because of the nationwide internment in most of the affected countries. COVID-19 threatens business operations everywhere, it's useful to recollect that the virus was initially feared for its impact on global supply chains; While the attentiveness and focal point is rightfully on running the immediate requirements of the ongoing crisis, the COVID-19 pandemic has uncovered susceptibilities in global supply chains (Desai, 2020).

Pandemic trade restrictions affected the power to supply and distribution of goods, evacuating inventory and tightening production capacity. In addition to the Retail grocery stores, they faced inventory shortages as they asked for less food and commodities. Producers are working to extend supply, but have only such a lot of proportions. Grocery chains have reduced hours to produce time for re-stocking, whereas food processors are increasing hours and manufacturing restricted product lines to increase capability and potency. Despite that, the modification within the consumers' buying habits, leading to empty shelves and temporary product shortages; consequently, producers and retailers charge to re-stock. (Salisbury, 2020).

COVID-19 spotlights the necessity for warehouses to be automatic beneath the pressure of the decline in human work efficiency, worker fluctuation dependency, natural migration, and the requirement to reduce the fee of logistical processes during crises. As automated warehouses reflect in revenues and not to get affected by the lockdown, despite the temporary decrease in retail ensuring the shortening the time to pick up products and fulfill the needs to be distributed to the market (Shah, 2020).

The transportation industry carries important social and environmental loads which have been adversely affected by the outbreak of COVID-19; which end in positive number effects like higher accessibility to producers, customers, and placement costs. Moreover, the outbreak of COVID-19 reduces the capacity of the transport to amass and sell a range of commodities necessary for industrial and producing systems. The effect is that cost is increased and there are at the same time, delays in supplying essential services. Therefore, transportation costs haven't grown significantly and are affecting the commodity market beginning from the firms which can no longer produce efficiently due to the inaccessibility of raw materials as well as their respective customers or markets (Lewry, 2020).

The logistics network disruption that has occurred from the pandemic, has spotted the necessity of stakeholders being able to identify suppliers, shift production to various alternative locations, and onboard different suppliers as demanded. As logistics service providers struggle from supply chain bottlenecks and adding pressure to encounter contracting responsibilities due to lockdowns, mandated business closures, ease approvals, workforce deficiencies, and exporting bans, terms of agreements and liabilities are being nearly burned up (Nwaeze, 2020).

The pandemic and recessionary environment can also accelerate technological change through artificial intelligence and automation. In industries like retailing and inventory; robots are increasingly getting used to attenuate human contact; as logistics providers, transporters, and freight workers are facing high risk to COVID-19, the reconfiguration of supply chains within the medium term through reshoring and near-shoring presents a development challenge. Through industrialization by producing hubs that produce vital components for many companies, mainly within the technology, automotive, and pharmaceutical industries; due to technological constraints; anticipating supply chain risks or unexpected crises, promoting sustainability, optimize performance and logistics efficiency (Corkery and Gelles, 2020).

The COVID-19 pandemic hardly affects the economy and the logistics sectors in the whole world. From the economic point of view, it is clear that there is a decline in GDP, imports and exports,

and exchange rates worldwide. Moreover, it is noted that the employment rate declined globally. While from the logistics and supply chain perspectives, it is severely affected by COVID-19 crises within all its processes, and hence, the efficiency of all business performance is affected too. So, the next two sections of this research will illustrate the methodology used in this paper to investigate the effect of COVID-19 on Egypt followed by suggestions to overcome the negative impacts and losses.

### **3. Methodology**

The research used both secondary and primary data collection methods to investigate the impact of COVID-19 on logistics and supply chain sector in Egypt. First, previous studies have been reviewed to get an overview about COVID-19 impact on the logistics and supply chain sector and to conclude with main aspects that need further investigation based on primary data collection. Then, semi structured interview was developed based on the extensive literature to discuss the impact of COVID-19 on the Egyptian economy and how it affects social practices, its impacts on the logistics sector focusing on each logistics activity separately, and the challenges and barriers that might hinder Egypt to overcome COVID-19 impact on logistics and supply chain sector.

The interview was conducted online in two consecutive weeks at the end of January 2021 with six Egyptian operators and stakeholders in the field of logistics and supply chain; import manager and export manager in Transport and Logistics company, a senior marketing executive and a senior research & development executive at Alexandria Container & Handling Company in Alexandria Port, a production operator and a warehouse manager in a manufacturing company and a retailing company respectively. Finally, the interviewees' responses have been analyzed to conclude with the research proposed roadmap.

### **4. Findings and Discussion**

#### ***4.1. COVID-19 impact on the economic and social practices in Egypt***

The interviewees commented that the Egyptian economy was in a recession status and a decline in its economic activities before the COVID-19 pandemic due to other factors such as inflation, high exchange rates, and poor investments. Starting from 2015, the Egyptian economy starts to flourish as a result of some political changes. However, after COVID-19 the Egyptian GDP falls again but by a small percent compared to the previous years. For instance, the amount of Egyptian pound depreciated compared to US dollars and Euros, the revenues of the Suez Canal fall, many companies in Egypt faced severe losses especially the private sector and Small and Medium Enterprises (SME's) and hence, they started to minimize their employee salaries and some of them minimize their employment by firing off extra and part-time employees to minimize their loss. Moreover, the interviewees agreed that although the losses that Egypt exposed during the COVID-19 pandemic, is not huge compared to other states such as; Brazil, United Kingdom, United States, Italy, and China.

#### ***4.2. COVID-19 impact on the logistics sector in Egypt***

##### ***4.2.1. Transportation***

The interviewees asserted that; curfews and lockdown affect the ability to transport and distribute goods. So, companies were quickly reformulating their supply chain blockages as conditions changed to find alternative local suppliers to reduce reliance on foreign suppliers. They agreed that maritime and air transport are the most affected modes of transport. Egyptian ports during COVID-19 have a notable lower cargo volume especially from China so freight rates declined, appointed port transits, and routes are canceled by the shipping lines as the East Port Said terminal is locked, while its west side remains open with limited operations. The Port of Alexandria is merely receiving vessels to discharge cargoes, and therefore the Port of Damietta is restricted to cargo ship activity. Consequently, the demand for road transport increased as it's the least affected mode of transport in Egypt. Moreover, the interviewees mentioned that Egypt has a lack of modern logistics practices such as minimizing their transport process documents, last-mile connectivity, using the Internet of Things, and driverless cars although of its high cost but it would minimize the harmful impacts of COVID-19.

#### ***4.2.2. Warehousing, Distribution and inventory management***

The interviewees stated that retailers and wholesalers in Egypt have faced inventory shortages in some exported products such as medical supplies so producers had been working to increase local supply, but had only limited capacity. Moreover, merchandisers have reduced hours to provide time for re-stocking, while food processors are increasing hours and only manufacturing limited product lines to broaden capabilities and efficiency as the freight rates for distribution increased, losing the efficiency of economies of scale and business profitable manners. Shifting workforces to work remotely as customers shift to online shopping and transactions, to avoid human contacts; for instance, realizing the need for implementing systems and sensors, permitting customers to create orders online and request that the bought product be delivered, enabling tracking and prediction of client orders, ensuring easier inventory control.

#### ***4.2.3. Egyptian imports and exports***

The interviewees stated that; due to trade restrictions mainly in maritime transport, exporting had been suspended for months for the basic items, except for the medical supplies' products, which were subjected to a severe shortage at the beginning of the pandemic in Egypt. Also, Egyptian imports decreased faster than its exports as Egypt depends on Chinese products to a great extent. However, they agreed that due to the COVID-19 crisis, this trade deficit would encourage manufacturers to produce their requirements locally to meet the needs of the national demand.

#### ***4.3. The challenges and the barriers faced Egypt during the COVID-19 pandemic***

The interviewees stated that there are a lot of challenges and barriers that might hinder Egypt to overcome the COVID-19 pandemic. First, Egypt has a lack of safety commitment culture; in other words, Egyptians do not commit to following the public health instructions such as wearing masks and so on, but lately, government policies have started to impose penalties on people who don't follow safety measures. Moreover, from the business point of view, most Egyptian companies use a reactive approach. They lack risk management strategies and they don't think about contingency plans. Finally, the interviewees hardly believed that most Egyptian companies depend on initial activities such as using a lot of documentation processes and a lot of employees to make one process done without any sort of using technology or green practices.

**4.4. Suggestions to overcome Corona-virus barriers in the logistics sector in Egypt**

The interviewees suggested that; to overcome COVID-19 challenges and barriers in Egypt, the Egyptian governments have to put rules and regulations to raise awareness about hygiene measures and precautions to control the virus with the least losses. Besides, Egyptian organizations have to follow proactive approaches by setting plans for emergency crises. Moreover, they have to know the country's capabilities and resources to depend more on their local products rather than exports; despite that monitoring the competitive global markets, to be well known with the new technologies and innovations.

This section highlighted the fact of COVID-19 negative impacts on all business enterprises and the major problems existing in the management of unexpected situations which cause a dramatic influence on the country's economic situation and international trade. In which, such suggested possible solutions could be regarded by firms to apply, eliminating their problems and guiding the stakeholders to assess implementations; noticing the effect on the long run for business success. Summarizing the research interpretations and propositions in the next section with recommendations and findings for future researches.

**5. Conclusion**

According to the findings, there are some obstacles are facing the Egyptian logistics activities and supply chain performance, the following roadmap provides some suggestions that could help in overcoming these obstacles and achieve efficient and proactive performance:

Table 1: Roadmap identifying the main COVID-19 obstacles and suggestions.

<i>Obstacles</i>	<i>Suggested Solution</i>
<i>Lack of digitalization</i>	Use virtual transactions rather than physical ones. Develop secure databases, supporting blockchain Upgrade in the Internet of Things Artificial intelligence Robotics in warehouses and inventories Sustainable Green practices
<i>Lack of safety measures precautions</i>	Increase employee's awareness for virus symptoms Merge employees schedule, to apply social distance and avoid the crowd Replace signatures with confirmation emails More efforts to maintain hygiene in workplaces and transport modes Increase spending on medical supplies for workers Improve cleaning and sanitizing environment

<b>Low productivity and efficiency</b>	<ul style="list-style-type: none"> <li>Develop managerial skills</li> <li>Maintain cash flow management</li> <li>Adjust quality control management</li> <li>Less relying on imported industrial materials</li> </ul>
<b>Trade restrictions and supply disruptions</b>	<ul style="list-style-type: none"> <li>Shift demand to the local market</li> <li>Producing products good substitute</li> <li>Focus on supporting small producers</li> <li>Lowering consumer consumption</li> <li>Secure labors safety to maintain their workforce</li> <li>Restructuring firms' operations</li> <li>Collaborations between private sectors and policymakers</li> </ul>
<b>Ineffective strategy for disasters in the long run</b>	<ul style="list-style-type: none"> <li>Continuous mirroring on the planning succession</li> <li>Opening new markets and chances to investors</li> <li>Accelerating acquisition of the internet of things</li> <li>Strengthen country digital infrastructure</li> <li>Engage workers to be motivated during hard times</li> </ul>

The research reviewed the impacts of COVID-19 globally and especially in Egypt, showing its effect on the logistics sector supporting the whole research content with a roadmap; that outline the main obstacles faced, and suggested solutions, to be used as a guideline to business enterprises as a way forward in their operations.

In conclusion, Egyptian stakeholders and investors are greatly in need to strengthen their business efficiency to avoid sudden risks. Moreover, their supply chain reliance on foreign products, raw materials, and spare parts; requesting further research to follow import substitution strategies and cope with trade restrictions and help the Egyptian market to gain a competitive advantage, risk management controls, and overcome uncertain challenges.

## 6. References

- Abel Brodeur, A. I. (2020). A Literature Review of the Economics of COVID-19. *Institute of Labor Economics*, 1-61. Available at: <https://www.iza.org/publications/dp/13411/a-literature-review-of-the-economics-of-COVID-19>.
- Corkery, M. and Gelles, D., “Robots Welcome to Take Over, as Pandemic Accelerates Automation” in the New York Times, (2020). Available at: [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms\\_746917.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_746917.pdf).
- Desai, Y., (2020). *Navigating the COVID-19 impact on U.S. transportation and logistics ecosystems*. Advisory.kpmg.us. Available at: <https://advisory.kpmg.us/content/dam/advisory/en/pdfs/2020/COVID-19-impact-transportation-logistics.pdf>.
- IMF. (2020) June. *International Monetary Fund*. Retrieved. Available at: [www.imf.org](http://www.imf.org).

- Islam, Mohammed Rafiqul & Muyeed, Abdul. (2020). IMPACTS OF COVID-19 PANDEMIC ON GLOBAL ECONOMY: A META-ANALYSIS APPROACH. International Journal of Technical Research & Science. Available at: [https://www.researchgate.net/publication/342320606\\_IMPACTS\\_OF\\_COVID-19\\_PANDEMIC\\_ON\\_GLOBAL\\_ECONOMY\\_A\\_META-ANALYSIS\\_APPROACH](https://www.researchgate.net/publication/342320606_IMPACTS_OF_COVID-19_PANDEMIC_ON_GLOBAL_ECONOMY_A_META-ANALYSIS_APPROACH).
- James K. Jackson, M. A. (2021). *Global Economic Effects of COVID-19*. Congressional Research Service (CRS). Available at: <https://crsreports.congress.gov>.
- Lewry, James. COVID-19: The Impact on Workers in Global Supply Chains, 7 April (2020). Available at: <https://www.controlrisks.com/COVID-19/the-impact-on-workers-in-global-supply-chains>.
- Nwaeze, Godstime, COVID-19 Outbreak, and the Transportation Industry: Effects, Prospects and Challenges June 5 (2020). Available at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3620460](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3620460).
- Ozili, Peterson K and Arun, Thankom, Spillover of COVID-19: Impact on the Global Economy March 27, (2020). Available at: <https://ssrn.com/abstract=3562570>.
- Salisbury, M., (2020). *COVID-19: The impact on the logistics industry - Fleet Point*. Available at: <https://www.fleetpoint.org/logistics/COVID-19-the-impact-on-the-logistics-industry/>.
- Shah, P., (2020). COVID-19 Impact Analysis on Logistics Industry. 10.13140/RG.2.2.17789.59361. Available at: [https://www.researchgate.net/publication/346570455\\_COVID-19\\_Impact\\_Analysis\\_on\\_Logistics\\_Industry](https://www.researchgate.net/publication/346570455_COVID-19_Impact_Analysis_on_Logistics_Industry).
- TheWorldBank. (2020, October). *The World Bank*. Available at: <https://www.worldbank.org/en/country/egypt/overview>.
- UNCTAD. (2021). *Global Trade update*. UNCTAD – Division on International Trade and Commodities. Available at: [https://unctad.org/system/files/official-document/ditcinf2021d1\\_en.pdf](https://unctad.org/system/files/official-document/ditcinf2021d1_en.pdf).
- Yongshi Yang, F. P. (2020). The deadly Coronaviruses: The 2003 SARS pandemic and the 2020 novel Coronavirus epidemic in China. *Journal of Autoimmunity*, 1-16. Available at: [https://www.researchgate.net/publication/339673284\\_The\\_deadly\\_Coronaviruses\\_The\\_2003\\_SARS\\_pandemic\\_and\\_the\\_2020\\_novel\\_Coronavirus\\_epidemic\\_in\\_China](https://www.researchgate.net/publication/339673284_The_deadly_Coronaviruses_The_2003_SARS_pandemic_and_the_2020_novel_Coronavirus_epidemic_in_China).
- Zhang, J., Hayashi, Y. (2020). Impacts of COVID-19 on the transport sector and measures as well as recommendations of policies and future research: Analyses based on a world-wide expert survey. Available at: <https://ssrn.com/abstract=3611806>.