

The Impact of Logistics Performance on Foreign Trade Volume

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Abstract: The study addresses the logistics impact on foreign trade volume, which has a significant role in the global economy. Logistics and transportation are becoming increasingly crucial in international economic ties. The Logistic Performance Index (LPI) compares nations, giving a broad picture of customs processes, logistics costs, and the quality of the infrastructure required for overland and marine transportation. The aim of this study is to examine the relationship between logistics performance and foreign trade volume. The data of LPI and foreign trade volume are been analyzed which were obtained from World Bank data. SPSS was used In order to figure out the results, As per the analysis results, the impact of logistics performance on foreign trade volume is statistically highly significant. Consequently, it could be suggested that the logistics ability of a country triggers the increase of foreign trade volume.

Keywords: Logistics, LPI, Foreign Trade, FTV, Transport

JEL Classification: B17

1. Introduction

Logistics is becoming increasingly strategic. This applies to both enterprises and nations where logistical competitiveness has been transformed into a significant aim of positioning on supply chains in a continual process of globalization, boosting their attractiveness, and enabling international commerce.

In this view, government policies have a significant impact on logistics performance since they may affect infrastructure quality, administrative procedure simplicity and agility, and cross-border trade facilitation (Arvis et al., 2014). For any government to guide these policies, it must have access to data on the many aspects as well as its own performance as well as that of its partners and competitors. In this context, the Logistics Performance Index, which is issued on a regular basis as part of the World Bank's "Connecting to

Compete" series of publications, assumes significance as a tool for assessment and comparison.

In this study, we focus on the data of 122 countries' LPI from 2010 to 2018 as well as foreign trade volume of the same countries and years to define the type of relationship between logistics performance and foreign trade volume.

2. Logistics

Logistics covers the functions of transport, storage, handling, and production, tends to extend its domain to purchasing and supply, downstream to business management and distribution. The definition of military origin is often quoted: "Logistics is about bringing what is needed, where it is needed and when it is needed. »

However, logistics has several services by their object and their methods: Supply logistics that provide factories with the basic products, components, and sub-assemblies necessary for production.

2.1. The evolution of logistics and its concept

The contribution of logistics in the economic sphere did not begin with its first appearance. But it emerged militarily and significantly during World War II (Lambert, D. M., 1998: 5, 6), which drew the attention of researchers and studies on how to benefit from this coordination and organization supported by logistics services, but in an economic way. Indeed, logistics entered the field of business and the economic field, and a new concept was established under the name "Logistics Economics. It is "the process through which companies increase their revenues at the lowest possible cost to provide the unlimited demands of their customers" (Sezer, S., Abasizt, T., 2017). : 13).

As for the role and concept of logistics, it has grown and developed successively with the passage of time, and the scope of logistics services expanded decade after decade. The latest findings of organizations can be summarized in a definition that contains the full meaning of logistics in the definition established by the CIM Logistics Board of Directors, which is as follows: "This part of the supply chain process that participates in planning, implementing and controlling the efficient and effective flow and storage of goods and related information from the point of origin to the point of consumption for the

purpose of matching customer requirements (Gundlach, GT, et al, 2006:432).

Transportation, storage, customs clearance, packaging, and distribution of items from the manufacturer to the final customer are all covered by logistics. In the past, logistics was limited to product transportation; today, it encompasses all services at all levels of the supply chain (Hacıbektaşoğlu, 2020). The following is a list of these services (Dirik, 2012):

- **Transportation:** It is the process of relocating to satisfy space and schedule requirements.
- **Storage:** It refers to the activities of storing raw materials, semi-finished goods, or finished products under appropriate conditions between the manufacturer and the point of ultimate consumption.
- **Order processing:** This refers to the operations involved in delivering client orders to the specified location and time.
- **Purchasing:** This is the process of determining which product to buy when to buy it, and how much to pay for it, as well as getting it delivered on time.
- **Customer service:** The sum of all operations performed to fulfill orders and ensure customer pleasure.
- **Packaging:** This is the process of ensuring that items are packaged and transported to consumers in such a way that they are not harmed by the environment.
- **Product transportation:** This is a collection of actions that involves moving items from one location to another within a manufacturing plant or delivering them to customers.
- **Supply-demand forecasting:** This is the process of stocking the right quantity of inventory by supplying raw materials and materials and projecting demand and sales.

2.2. Importance of Logistics

Logistics is utilized to deliver items on time and securely, and it plays a vital part in supply chain management. Customers may now order items not just from the places where they are manufactured, but from all across the world. Customers also demand their items be delivered swiftly and in the finest possible condition, regardless of location (Hacıbektaşoğlu, 2020).

Increased market competition, brand similarity, the need for companies to stand out in the market, the competitive advantage derived from being first and

fastest in the sector, the benefits of long-term relationships between suppliers and customers, customer satisfaction, and customer loyalty are the most important factors driving up the importance of logistics. Because of the current state of the markets, firms can place a premium on logistics operations as well as the sector's continued development (Sümersan Köktürk & Çobanoğlu, 2019).

2.3. Components of Logistics Activities

With regard to the components of logistics, it contains many sub-activities which are categorized as principal and auxiliary activities and in relation to major activities among the most important are.

2.3.1. Transport

Transportation comes on top of logistical activities. Not only is that but there a special branch of logistics called Transport Logistics (Kondratiev, J., 2015:13).

2.3.2. Storage

Storage is required in any manufacturing process, whether it is storing intermediate resources or finished items until they reach the end consumers (Kondratiev, J., 2015:13).

2.3.3. Inventory Management

One of the main goals of logistics is to provide storage space. Not only that, but also providing good management of stock movement in order to organize stock flows in a timely manner to customers and markets in addition to maintaining and protecting it in the right ways (Ahmed Mohamed Ezzat, 2011: 8).

2.3.4. Packing

Packaging comes as one of the important logistical activities that greatly express the quality of the product. It also has an important role in attracting customers and users, as well as preserving the product against corruption, in addition to facilitating its transportation process (Lambert, DM, 1998:19, Lourance, HR, 2005: 9).

2.3.5. Order processing

The main role of order processing is simplified in preparing and processing the order and making it available to the customer (Lourenco, H. R., 2005:11, 12).

2.4. Logistics and international Trade

International trade is essential for a country's economic prosperity. It is especially crucial for developing nations' economies since it offers them substantial growth opportunities by allowing them access to international markets. It also helps these nations' economies to be integrated into the global supply chain, allowing them to take advantage of chances to diversify suppliers, penetrate new markets, and gain economies of scale (World Bank, 2012). The logistics door on the triptych's effectiveness and efficiency: time, cost, and quality are all important elements in economic and commercial activity. Given the complexity of operations, the geographic scope, the diversity of parties, and the weight of red tape, this is especially relevant in the case of international commerce.

Different writers agree that bilateral trade and logistics are inextricably linked (Limao and Venables, 2001, Djankov et al., 2006). As a result, Behar and Manners (2008) argue that the logistical capabilities of exporting and importing nations are critical for bilateral exports and trade. In research on Sub-Saharan Africa, it was anticipated that lowering export costs by 10% by enhancing business process efficiency would result in a 4.7 percent rise in exports (Wilson et al., 2004).

In turn, the study "Trading across Borders, 2012" highlights the importance of infrastructure, port operations, customs, and administrative processes, as well as inspections and audits, as well as other elements that may impact the flow of commerce. The research also said that infrastructure upgrades alone are not enough; they must be backed by appropriate legislation and regulations as well as dependable logistical services.

Furthermore, because the information is at the core of the supply chain, the installation of electronic data interchange systems (EDI) is a vital instrument in international trade, according to the paper. This implementation should take into account some of the main success criteria highlighted in terms of adjusting the regulatory framework to establish technical infrastructure and increase stakeholders' information technology capabilities.

There are several areas of collaboration in this regard, not least those connected to the harmonization of processes and regulations, both those impacting information flow and those affecting financial transactions. The study "Trading Across Borders, 2012" highlights Mali as an example of a landlocked nation that

signed a border transit agreement with Senegal to unify trade paperwork, reducing the number of checks between Dakar and Bamako from 25 to 4.

2.5. Principle and functions of logistics

Some logistical principles are universally applicable in both the military and the manufacturing sectors. These concepts serve as a roadmap for implementing and developing logistics services. MEB (2011) examines the logistical concepts across eight areas. These are the following:

- 1) Standardization: Logistic services utilized in supported systems should be uniform. International standards in standard services, materials, techniques, and applications are critical. Standardization of required logistical aspects, such as containers, handling elements, trains, and information technology, aids enterprises in capturing competitiveness in the globalization process. Standardization, collaboration, and manageability should all be top priorities.
- 2) Affordability: In today's global economy, resources are depleting, demand is rising, and needs are getting more diverse. The cost–resource balance should be well–adjusted with the least expenditure, according to the economic principle. When companies pay attention to priorities and resource allocation, they will save time and money.
- 3) Sufficiency: non–plan expenditures should be avoided from affordability and sustainability rather than the excess value of the surplus stock, according to the sufficiency principle.
- 4) Elasticity: Logistics organizations should be organized to accommodate current customer behavior, tasks, concepts, and conceptions.
- 5) Simplicity: Companies should avoid difficult situations in both practice and planning, and all departments should be focused on sustainability. Simplicity increases efficiency and makes information more accessible.
- 6) Traceability: It is necessary for the early detection and resolution of possible problems that can be monitored in real–time by real–time monitoring of the amounts, situations, production times, and locations of products used in all departments with the help of information technology and electronic systems.

3. The Logistics Performance Index (LPI)

Provide a statement stating what is intended in the "Introduction" chapter will eventually result in the "Results and Discussion" chapter, indicating that the two are compatible. Furthermore, the potential of the development of study results

and the application possibilities of future studies might be provided (based on result and discussion).

The International Bank for Reconstruction and Development and the World Bank have published the study "Connecting to Compete: Trade Logistics in the Global Economy" every two or three years since 2007. Despite its evolution from the 2007 edition to the 2010, 2012, and 2014 editions, the study retains the Logistical Performance Index (LPI), which assesses the field efficiency of supply chains commercial and logistics performance of a wide variety of nations. A total of 155 countries are represented in the 2012 edition.

a. The field of inputs relating to regulations and government policies, which includes:

- The efficiency of the customs clearance process (Customs);
- The quality of the commercial infrastructure and related transportation infrastructure (infrastructure) and the quality of the commercial infrastructure and related transportation infrastructure (infrastructure).
- Logistics service competence and quality (skills and quality of services).
- b. The field of outputs associated with the service's performance, which includes:
 - Ease of coordinating shipments at reasonable rates (shipping facility organization);
 - Capacity monitoring and consignment traceability (traceability);
 - The regularity with which shipments arrive on time at their destination ("timeliness").

The index is based on a survey of logistics experts who are responsible for the flow of products throughout the world, and it represents their assessments of a country's logistics based on the above-mentioned components. The scale ranges from 1 to 5, with 5 reflecting the best performance. Despite the authors' recognition of some limitations in the validity domain (Arvis et al., 2012), which are inherent in any inquiry or related to the sorts of respondents used, the Logistics Performance Index remains a source of aggregate data that allows nation comparisons.

In addition to the index, and hence encrypted data on logistical performance, the report contains analysis that led to the following findings in the 2014 edition:

- A –lente– the convergence of logistical performance has been seen;
- If the service is inadequate in physical connectivity, it is insufficient to compensate;
- For a more dependable supply chain, trade facilitation and border control changes are critical;
- Growing complexity necessitates coherence in action plans and cooperation among many players (public and private).

4. Foreign Trade

"In its broadest sense, foreign trade is the acquisition or selling of products and services beyond a country's boundaries in exchange for a monetary sum." Foreign trade, which is both a development indicator and a significant source of revenue for a country, it is a significant phenomena in effectively providing basic necessities and raising a country's welfare level." (Kara, 2012: 33).

There are several advantages of doing foreign trade. These benefits can be briefly explained as follows; (Dinler, 2012: 550 – 551):

- Meeting the production and resource gap: Developing nations satisfy their demands by importing commodities and services that are important for their growth but cannot be produced locally.
- Providing a local market for surplus products: In circumstances where domestic demand is insufficient or excess output of products produced in the nation is excessive, it permits the sale of excess resources and revenue to meet the demands of overseas markets.
- Large market volume: Net increases in production have an effect on reducing costs in the field of foreign trade.
- Competition: Foreign trade brings domestic and foreign producers face-to-face, while enabling efficiency in production to increase, while also contributing to the development of technology.

5. The Importance of Foreign Trade

Foreign trade is considered one of the basic pillars in the economic structure, and the world has known foreign trade activity since ancient times, and international trade has grown with the growth of civilization, the emergence of the revolution Industrial development and transportation and communication, then the revolution of modern technology which affected significantly on growth The increased amount of international trade movement (Hassan Ahmed Tawfik, 1989, p: 10).

There is no doubt that foreign trade helps raise the level of economic well-being for any country. Countries vary among themselves in terms of the availability of natural resources and economic advantages in the production of goods and services. This is a country in which there is cotton cultivation, and this is a country in which Wheat and trade Foreign affairs enable each country to benefit from the advantages of the other country in the production of a specific commodity, and thus enjoys In many countries, what is available in production in another country, and the consumer enjoys in countries that have not Nature gives it an advantage in the production of a particular commodity overproduction in other countries. In this way, foreign trade is a tool that brings distances closer, crosses borders between countries, and eliminates differences

The natural resources are among them, and their choice places space for all the countries. Through foreign trade, our country benefits The world's best choices are in the East and the West, and this benefit is not limited to noting the goods and services that the consumer enjoys, but there is another advantage.

The commodity is produced at a lower cost in another country, so each country concentrates on producing commodities with a comparative advantage in terms of production costs, resulting in the production of large quantities of commodities and the benefits of the large production system, lowering and improving the cost of production. The quality of manufactured goods, which translates to a greater level of life for inhabitants of various countries, and the same holds true for the services that certain countries give to others.

6. Reasons for Establishing Foreign Trade

The reasons for establishing international trade can be summarized into the following factors:

- Because of a lack of distribution, no country can achieve total self-sufficiency.
- International specialization: As previously said, because of the disparity in the distribution of natural and acquired riches among the countries of the globe, governments cannot rely alone on themselves to meet the requirements of their people.
- The difference in production costs: The difference in production costs between countries is a motive for trade between them, especially in countries that have the so-called economies of scale. Which gives the first

country a comparative advantage in production compared to the second country.

- Different production conditions: Some regions with a seasonal climate are suitable for growing bananas and coffee, so they must specialize in this type of agricultural product and import other products that they cannot produce, such as oil, which is available in desert climate countries like the Arab Gulf states.
- Differences in tendencies and tastes: the citizen prefers foreign products even if the local alternative becomes more important, and the importance of this factor increases with the increase in per capita income in the country (Musa Matar, et al, 2001).

7. Characteristics of Foreign Trade

The government can import commodities that are impossible to manufacture or that can only be produced at a high cost:

- Many nations face severe conditions or emergency situations that make production impossible or difficult.
- The state can get rid of surplus production in the foreign market, by exporting and selling it abroad at a higher price than that which can be sold in the local market.
- Foreign trade enables us to expand our consumption patterns, and the level often improves –livelihood as a result of importing goods that did not exist locally, and this is the case for many innovations and commodities in Urban areas.
- The trade exchange between countries works on the spread of ideas, opinions, and cultures, thus facilitating acquaintance and alienation and less potential for tension.
- Many believe that international trade is one of the factors that help stabilize political relations. International peace is the spread of peace because the economic interdependence of states and peoples makes them more close and inclined to avoid the scourge of war and its bad effects on the economies of the countries in which it is engaged. (Muhammad Al-Sanusi Shehata, p. 45).

8. Benefits of Foreign Trade

The benefits of foreign trade can be seen through:

- Increasing economic welfare: by increasing the production of people's

needs of goods and services either –Because of the unavailability of these goods and services in some countries and their movement through foreign trade worldwide or due to obtaining these goods at lower costs as a result of having to return them from Countries have a comparative advantage in production due to economies of scale.

- Optimum utilization of resources: Instead of the state producing all its needs, and this leads to –Waste the natural and acquired resources that they possess, they instead specialize in the production of goods that its production has a comparative advantage compared to other countries, and it imports goods that countries have an advantage relative production and this leads to better exploitation of the resources of the two countries (Musa Matar, ET, P: 12).

9. The Importance of Foreign Trade in Terms of Economy

First of all, foreign trade is important in terms of meeting the needs of people. However, it affects the military, political and social structure of the country and world economies. Its importance is foreign exchange earnings and income generation.

The country's foreign trade does not affect only economic relations but also political relations. It fetches many important results, one of them the result of economic policies. In addition to that, it establishes a close relationship with the macro and microeconomic structure within the country, so when there is a problem in foreign trade within the country's economy, this problem can have profound effects in every field. Foreign trade is used as a criterion in measuring the development level of countries (Parasiz, 1998:71).

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