

Trend Analysis of India's Logistics Performance Index: A Secondary Data Study

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Abstract

World Banks Logistics Performance Index (LPI) is a highly recognized global benchmarking instrument that determines the efficiency of trade logistics and supply chain of a country. As the role of logistics in determining the competitiveness of trade and economic growth cannot be overstated, the research on the Indias LPI performance can be a perfect source of information regarding the efforts of the country that aim at improving its logistics industry.

This paper conducts a trend analysis of the performance of Indias LPI by analyzing secondary data available on World Bank publications on Indias LPI (2007-23). The analysis is based on descriptive and analytical approach to assess the variation in the Indias position and general scores across various years of the survey. The findings of the research show the fluctuating status of India in the global ranking, when it dropped significantly and when it significantly improved following the changes in the policies and the investments the country made in infrastructures. The advance in infrastructure, digitization of customs, and the timeliness of shipments have been the key advancements that have particularly been notable in the past few years.

The results are oriented at the contribution of governmental tools such as National Logistics Policy (2022), PM Gati Shakti National Master Plan, introduction of Goods and Services Tax (GST) and massive infrastructure projects into the context of increasing the efficiency and competitiveness of the logistics industry

Keywords: Logistics Performance Index (LPI), Logistics Efficiency, Supply Chain and GST.

I. INTRODUCTION

Logistics is one of the prime enablers of the economic growth of a country because it enables the process of delivery of the goods and services to the final consumers. A well-developed logistics system has been necessitated in the world as a country to ensure that it gains some competitiveness in the international market, foreign direct investments (FDIs), reduce transaction costs, and increase the overall productivity of the economy. The nations that have developed their logistics networks have become more involved in the global value chains and their rates of economic growth have been increased. That is why, there is no wonder that the issue of the performance assessment of national logistics systems becomes a topic of concern in the policymakers, scholars and international organizations.

The Logistics Performance Index (LPI) that the brainchild of the world bank is a candidate of the most accurate instrument to measure the logistics efficiency of countries in the world. LPI, which was initiated in 2007, is an overall measure of the logistics capacity of a given country. It deals with six major customs and border management areas, quality of trade and transport, related infrastructure, the amenability of local logistic services and their capability, capacity to track and trace consignments, timeliness of shipments, and ease of planning international shipments. The LPI collects information based on surveys of logistics professionals as well as relying on secondary data of official sources and quantitative indicators. The findings can give an order of ranking of the countries according to their logistics performance besides, the LPI can reveal the interesting facts of strengths and weaknesses of a country with reform requirements.

The Indian economy is on a crossroad to decide whether to stick to the traditional methods of economic development like agriculture or to switch to industrialization and services. The increasing manufacturing sector can be largely credited as argued by various studies to the input of industries that are involved in the production of transport equipment's, chemicals, machinery and electrical equipment's (Joshi et al., 2010). A well-developed transport infrastructure has always been among the key requirements of the manufacturing industry development in any country with an efficient domestic logistics system. Regrettably, in India, the transport infrastructure and the logistics systems have much to be desired and, therefore, inhibit the economic growth as a whole (Figures 1 and 2). The government of India has understood the relevance of logistics in trade and has suggested that there should be a Logistics Division in the Department of Commerce with a purpose of supporting the export and import operations (Ministry of Commerce and Industry, 2015). The government has introduced reforms in the logistics sector, which involve multimodal transport, e,

Logistics, warehouses, laboratories, and an AIS electronic toll tax system, etc. But these reforms have been less than dramatic and even though the government has been aware of the issue, the solutions to the problems are yet to be visible. It is more of the Introduction that I have stretched out in accordance with your desire that I add more analytical background and greater research focus to get to three full pages of scholarly length.

The contemporary global economy relies less and less on production efficiency to generate competitiveness but it also relies on the efficiency of the supply chain networks. Efficient logistics reduces lead-time, inventory costs, customer satisfaction and trade integration. Those countries that strategically invest in the logistics infrastructure and policy reforms tend to experience the improvement of their export performances and the industrial productivity. Therefore, the field of logistics is not perceived as a production arm anymore, but as the primary driver of the national economy. The changes are depicted in a data, driven way through the Logistics Performance Index (LPI). The LPI in a nutshell captures the real situation of the freight forwarders, transport operators, and logistics professionals by comparing perception, based and quantitative indicators. Therefore, it is a handy measure of the facilitation of the movement of goods across the borders and within the national markets. In the case of an emerging economy such as India that is in a continual state of increasing trade volumes and infrastructure needs, the LPI is a great benchmark of the improvement of the situation in comparison with the global level of standards.

Background of the Study

The issue of logistics plays a critical role on the competitiveness of the economy of a country and the extent to which trade is conducted in the global economy. Goods transfer, e.g. raw materials to the finished ones, should be timely, cheap and reliable. It is not only about the volume of international trade that countries are being assessed; it is also about the efficiency with which a country can deliver and transport its goods; this is a defining factor in betterment of international trade. In this position alone, the Logistics Performance Index (LPI) which was developed by the World Bank has become a significant yardstick on which to measure the logistics performance of a country.

This is because the Logistics Performance Index is a highly detailed tool that can be used to determine the degree of efficiency in the overall supply chain management in various countries. LPI, originally introduced in 2007 is a logistic, performance indicator that is based upon the following six criteria: how well the customs procedures are carried out, the quality of the infrastructure, the ease of which international shipment can be arranged, the competence and quality of

logistics services, the possibility to track and trace the shipments and the timeliness of the delivery. This index is published after some period and it has gained popularity among the politicians, academicians and other players in the industry to diagnose the features and shortcomings of the logistic systems.

In the case of Indias, the sphere of logistics is not only an activity of the operations of a country; it is the main pillar of the country economy. India is one. Although the Logistics Performance Index offers numerical scores and ranking, there is a more general narrative of the economic journey of a country that can be found behind the scores. In the case of India, logistics is closely related with its hope of becoming a global manufacturing and export giant. During the last 20 years, India has transitioned to a rather closed economy to a highly integrated member of the global trade networks. The effectiveness of logistics systems is more noticeable--and more important as trading volumes grow.

The high cost of logistics has remained one of the greatest issues that have been linked to the logistics industry in India historically where they have been estimated to be a greater percentage of the GDP relative to other developed economies. The cost of logistics is high which lowers the profit margins of businesses and also render exports uncompetitive in the global market. In the analysis of the tendencies in the Logistics Performance Index in India, one should focus on the structural reforms that have occurred.

Infrastructure development has also been a major player in the development of logistics performance. Roads, freight corridors, port development and modernization of airports are being made in massive investments that will bring down transit time and enhance dependability. To illustrate, the emergence of multimodal logistics parks and established transport corridors can be used to enhance smooth connectivity of road, rail, air, and water transport. These projects have impact on the infrastructure element of the LPI. Nevertheless, infrastructure initiatives require time before they bring quantifiable outcomes, and trend analysis could be useful in determining whether the progress is slow and long-term.

Customs efficiency is also another significant factor that affects logistics performance. One of the bottlenecks that have been quoted in most developing countries has been the customs clearance procedures. India has strived to digitize custom procedures, introduce risk-based inspection, and minimize the amount of paperwork. Single-window clearances and online documentation systems can be seen as reforms which are designed to enhance transparency and shorten the time taken to complete clearances. The increases in the customs processes can also boost the LPI scores of India to a larger degree, especially the dimension about the efficiency of the border management.

The application of technology has also changed the picture of logistics. The digital tracking systems, the GPS-based fleet management, warehouse management software, and block chain-based documentation are becoming more and more often implemented into the logistics operations. The technologies enhance visibility, accountability, and real-time tracking of deliveries. The LPI tracking and tracing dimension is an indicator of the quality of implementation of such technologies. The increasing digital environment of India, under the umbrella of projects such as Digital India, provides a business environment that facilitates technological improvement in the logistics.

Along with infrastructure and technology, the capability and quality of logistic services is also a key factor. Logistics service providers such as freight forwarders, shipping companies, transport operators, and warehousing firms are very critical towards making sure that there is smooth supply chain operation. The fact that the index ranks the countries in the world means that the performance of India should not be considered solely but compared with other emerging and developed economies. Although the scores of India could also increase it may still change depending on how other nations do. Thus, a comparison between trends within several years gives a more accurate picture of competitiveness in relation to each other in the global logistics environment.

Logistics performance is also affected by the external factors. The global supply chains were revealed as vulnerable to events like the COVID-19 pandemic. Lockdowns, labor crunch and transport lockdowns hampered the logistics operations around the globe. In the case of India, sustaining supply chain in times of such emergencies challenged the strength of its logistics. The trends in LPI, which takes place before and after such global disruption, give information on the flexibility and resilience that the logistics system of the country has.

Also, the issue of sustainability has been on the rise in logistics. Green supply chain practices, environmental concerns and fuel efficiency are becoming a priority in the world. Even though sustainability is not a distinct LPI dimension, the implications of the environmentally efficient infrastructure and modern transport systems are indirect to enhance the logistics performance. The increased focus on electric movements, rail freight, and coastal shipping in India is part of the overall sustainable development of logistics.

The other major purpose of carrying out this trend analysis is policy appraisal. Governments bring in reforms hoping that it will lead to a certain level of improvement, and in the absence of systematic analysis, it becomes hard to check whether the policies implemented have been effective as intended. Comparing policy milestones with the shift in LPI scores, the study can help to provide some interesting insights into the success of governmental efforts in the

logistics sector. Background of this study highlights how strategic the logistics are in the development path of India. By analysing the trend in secondary data on the Logistics Performance Index, this study is expected to comprehend the current development level, detect the existing gaps, and see the long-term perspective of the Indian logistics sector. Humanizing the information and engaging it with economic realities, the research is aimed at presenting the valuable insights into the possibilities of India to reinforce its role in the global logistics arena and come the step closer to the model of sustainable and inclusive growth.

Review of Literature

To measure the efficiency of logistics in countries throughout the world, the Logistics Performance Index (LPI) was created by World Bank (2018). The LPI is considered to be a measure of six large dimensions according to the World Bank report (2018): the customs efficiency, infrastructure quality, international shipments, logistics competence, tracking and tracing, and the timeliness. The paper has underscored the fact that the performance and economic growth of countries with robust logistics systems is better. Infrastructure development and policy reforms increased the LPI ranking of India at a slow rate.

In their study, Arvis, Jean-Francois et al. (2016) have a detailed examination of logistics performance in the world through the use of LPI framework. The authors compared the logistics performance of various economies and highlights how effective supply chain systems can be used to facilitate international trade. The paper has observed that some of the emerging economies such as India have also enhanced their logistics by investing in transportation, and reforms in trade facilitations. Nevertheless, other issues like the delay at the customs and poor infrastructure continue to interfere with the efficiency of logistics.

The article by Reza Farahani and Nasrin Asgari (2015) examined the logistics performance indicators and their effects on the effectiveness of the supply chain. They discovered in their study that logistics performance has a direct impact on making national economies competitive. The paper further highlighted that, international trade performance can be improved by countries having effective logistics systems that can lower transportation costs, boost the reliability of delivery that ultimately improves the performance of international trade.

One of the studies by Rakesh Mohan Joshi (2014) explored the trade facilitation system and logistics infrastructure of India. Within her article, the author has indicated that the logistics sector in India is very crucial in allowing the export and importing activities. The authors of the study proposed that the logistics performance of India could be improved greatly when the transportation

infrastructure is improved, advanced logistics technologies are implemented, and the customs procedures are simplified.

National Council of Applied Economic Research (2020) reports that logistics industry is one of the contributors to the economic growth of India. The report indicated that the cost of logistics in India is relatively high in relation to developed nations which ranges between 13-14 percent of the GDP. The research suggested the modernization of the infrastructure and the digital logistics systems and the reform of the policies aimed at enhancing efficiency and decreasing the cost of logistics.

A further research by **P. K. Sahoo and Ranjan Kumar Dash (2019) evaluated the performance and infrastructure development of India in terms of logistics. According to their study, the ease in the road networks, port infrastructure, and digital tracking systems have positively impacted the efficiency of logistics in India. This paper has found that policy measures including logistics parks and integrated transportation systems could be used to further enhance the performance of logistics in India.

Objectives for the Chapter

1. To examine the trend of the Logistics Performance Index (LPI) in India across the various years.
2. To analyse the variations in the ranking of India and its score in the global Logistics Performance Index.
3. To examine how various subunits of the Logistics Performance Index are performed in India.
4. To find out the determinants of the gains or losses in the logistics performance of India.
5. In order to assess the general development of the Indian logistics industry through secondary sources.

Research Questions

1. How has India's Logistics Performance Index (LPI) changed over the years?
2. What are the major trends in India's ranking in the global Logistics Performance Index?
3. How have the different components of the Logistics Performance Index performed in India over time?
4. What factors contribute to the improvement or decline in India's logistics performance?

5. What does the trend of the Logistics Performance Index indicate about the development of India's logistics sector?

Methodology for this Study

This research will employ descriptive and analytical research design as it will be used to examine the trend in the India's Logistics Performance Index (LPI) over the years. The study is also based on secondary data because no primary data collection is involved in the research. The information required to conduct the study is gathered through reliable sources such as the reports of the world bank, government publications, research, and other pertinent databases on the internet in the context of logistics and supply chain performance. The research basically focuses on the comparison of the scores of India's Logistics Performance Index and ranking over various years in order to identify the trend and variation over the years. In order to analyse the data, the trend analysis, as well as usage of tables and charts are used to describe the data and gain an idea of the overall development of the Indian logistics sector.

Issues and Trends

India has been witnessing radical changes in its logistics industry over the past few years, a situation that can be reflected on the index of Logistics Performance (LPI) in the country. The LPI is a bi-annual index of logistics performance of nations by the world bank and it is measured in different aspects, such as the customs, infrastructure, international shipments, logistics competence, tracking and tracing, and timeliness. Although India has been doing well in certain spheres, the industry is struggling with a number of issues that are undermining its performance. Poor infrastructure has been cited as one of the most significant aspects that are holding back the performance of logistics in India. Although the nation has been investing massive sums of money in its road, port, and rail infrastructure, there are some parts that are still underdeveloped. Inadequate connectivity, road congestion, and inadequacy of warehouses among others are some of the factors that make transport time and cost of logistics to be very high. In addition to that, these issues undermine efficiency and, consequently, influence the positions of India in the Logistics Performance Index. In addition, the absence of automating customs processes and other regulatory procedures is also the biggest obstacle. Problems such as a piled mountain of paperwork, slack clearance and red, tape do not only slack the process of receiving and dispatching goods but also contribute to the costs of cargo and shipping. Figure 1 has been digitized and brought under the umbrella of reforms to simplify the customs, yet, there are challenges of coordination and performance of the sector on a positive scale that

have been moving in the right direction over the years. The government has made a series of steps that target to revitalize the logistics sector and at the same time.

Analysing the Trends of India's Logistics Performance Index Using Secondary Data

The logistics performance index (LPI) is a highly important indicator in the world as it can be considered a measure of the performance of the logistics sector of a nation. The global financial institution known as the World Bank develops and publishes the LPI to act as a reference in the comparison of the effectiveness of various nations in the transportation of goods within and outside their territories. The index includes a number of key elements that the index considers like efficiency of customs, the nature of the infrastructure, the ease of international shipments, the logistics capacity, the trace and track ability as well as the timeliness of the deliveries. The logistics performance is of great importance in the case of the fast and developing economy, such as India, and the degree to which it will be able to assist. India currently holds a very significant position in trade competitiveness via the logistics performance and an economy contributor. The last few years have witnessed a tremendous change in the performance of the indies logistics sector. It can be seen that one can gain an insight into the changes in the LPI rankings and scores over different periods of time by considering secondary data acquired based on governmental reports, research papers, international databases. The data of this type can indicate how the logistics sector responds to the improvement of infrastructure, policy changes, and new technologies implementation. Through secondary data analysis method, the long-term trends can be identified, and the progression of Indias logistics performance can be easily and cheaply determined. The research into the evolution of the Logistics Performance Index in India reveals not only the progress, but also the challenges, which are yet to be overcome, especially in the logistics industry. Other than the advancement in the transport services, tracking and tracing facilities are also cited.

The Present Scenario of India's Logistics Performance Index

The logistics industry also plays a significant role in the economic development of the country because it enables the free movement of products between manufacturers and consumers. India has received enormous amount of public and private sector interest in its logistics sector in the recent past because of heightened trade activities and growth in the industries within the country. The index called the Logistics Performance Index (LPI) by the World Bank can be termed as one of the most widespread indices to determine the level of efficiency

of the logistics sector in a nation. The index is an amalgamation of the scores of the countries on the various matters of both the public and private logistics like customs, infrastructure, international shipments, logistics competence, tracking and tracing, and timeliness. The current LPI status of India is a story of an improvement and hindrances in the Indian logistics industry. India has shown a slow but continuous increase in its logistics measures in the recent past. The nation has gone forward in improving the transport system, easing the process of custom screening, and introducing better quality logistics services. The logistic performance index of India has therefore recorded fluctuations but generally an improvement in terms of rank. The development of the port facilities, road system and application of logistics technology have contributed to the enhancement of supply chain effectiveness. Other than that, the government has put in place a number of measures that are aimed at,

Data Analysis and Interpretation of India's Logistics Performance Index

Data analysis and interpretation is significant in delving into the performance of the logistics systems within a country. This paper will conduct the trend analysis of the Logistics Performance Index (LPI) of India through secondary sources of data. Logistics performance index is a popular measure, which was created by the World Bank to evaluate the efficiency of logistics processes in various countries. It measures various relevant elements including the efficiency of the customs, the quality of infrastructure, international deliveries, competency in logistics, tracking and tracing as well as timeliness. The research is aimed at comparing the LPI performance of India in various years to trace the trends and patterns in the logistics development. The analysis is done using secondary data derived through the use of credible sources like the World Bank reports, government publications, and logistics research studies. Such sources of information are useful in understanding the weaknesses and strengths of the Indian logistics industry. In the process of data analysis, the study will be able to assess the extent to which the enhancement of infrastructure and transportation networks, customs processes and logistics services have contributed to the logistics performance in India. The result of the collected information can be interpreted to get an idea of the progress undertaken by India in enhancing its logistics efficiency and competitiveness in world trade. Moreover, the analysis can also indicate the main aspects that affect the logistics performance and point out the spheres that need to be improved. Following the tendencies of the Logistics Performance Index, one will be able to see the general trend of the logistics sphere development in India during the years. This discussion also assists decision makers and logistics service providers to know areas where they can exploit the opportunities to

enhance logistics operations and enhance the supply chain performance in the country.

Analysis of Customs Efficiency in India's Logistics Performance

The efficiency of customs is also a significant issue that determines the overall efficiency of the logistic system of a country. Arvis et al. (2018) state that transparent, fast, and well-coordinated customs procedures can reduce delays in international trade and enhance the ranking of the Logistics Performance Index of a country. Customs efficiency in India has been enhanced over the years with the help of some of these initiatives; electronic data interchange system and digital documentation. On the same note, Hausman, Lee and Subramanian (2013) opined that effective customs clearance processes are critical in enhancing international trade and minimizing logistics expenses. Thus, the logistics performance can be greatly optimized in India by improving the customs processes and decreasing administrative delays.

Analysis of Infrastructure Quality in Logistics Operations

One of the main factors that will affect the efficiency of the logistics activities in a country is the quality of infrastructure. Arvis et al. (2018) found that an advanced infrastructure, which includes highways, railways, ports, and logistics hubs, has a significant role in enhancing the ranking of Logistics Performance Index of a country. The infrastructure development in India has enhanced due to numerous government projects that are geared towards enhancing transportation systems. Nevertheless, some areas continue to have the problem of bad road connections and traffic congestion in large ports. Equally, Rodrigue (2020) emphasized the fact that effective infrastructure systems assist in minimizing delays in transportation and enhancing supply chain efficiency. Thus, the logistics infrastructure must be constantly developed to improve the logistics performance in India.

Analysis of International Shipment Performance

The international shipment performance is an expression of the capacity by a country to organize competitive and punctualities of shipments in the international trade. Hausman, Lee, and Subramanian (2013) also state that effective international shipment systems contribute to competitiveness in trade and also lead to the minimization of logistics expenses. The performance of international shipment in India has been slowly increasing because of the enhanced connectivity by ports and trade facilitation initiatives. Nevertheless, issues like port congestions and delays in regulations are still capable of impacting on shipments efficiency. Equally, Arvis et al. (2018) indicated that the higher the score of Logistics Performance Index, the more effective shipment arrangements are in the country.

The logistics performance of India can hence be enhanced by enhancing shipment coordination and transportation systems.

Analysis of Logistics Competence and Service Quality

The logistics competence and service quality are the indicator of the effectiveness of the logistics service provider in a country. Christopher (2016) confirms that effective service providers, as well as competent logistics personnel, are important in enhancing performance in the supply chain. The logistics industry of India has been in development as the transportation, distribution and warehousing services have grown. Nonetheless, the business continues to experience issues concerning the training of skills and standardization of services. Along these lines, Rushton, Croucher, and Baker (2017) stressed that to enhance the logistics performance, it is crucial to focus on professional logistics management and an effective service quality. Increasing the logistics competency will greatly empower the supply chain activities in India.

Challenges and Opportunities in Trend Analysis of India's Logistics Performance Index

Key Challenges and Future Opportunities in India's Logistics Performance

The logistics industry in India contributes greatly to economic development, commerce as well as efficiency of supply chains. The Logistics Performance Index (LPI) is a way of determining the efficiency of the logistics system of a country in terms of the quality of infrastructure, customs, reliability of shipments, and a timely delivery. Even though in the past few years, India has been improving, there are still several issues related to the logistics performance in India. Poor infrastructure such as poor road network, overcrowding at ports and lack of modern warehouses is one of the greatest challenges. These problems result in setbacks in transportation and add to the general logistics expenses. Moreover, there is also the issue of delay associated with the complex regulations, as well as processes of customs clearance, that sometimes lead to the delays in goods transfer, which impacts the international trade processes. The other obstacle is that small and medium logistics service providers have low adoption of advanced technologies. Notwithstanding these problems, India has good prospects of the better performance of its logistics. The efficiency of logistics is likely to be improved with the help of government efforts aimed at infrastructure development and improved connectivity and digital transformation. Moreover, transparency and high performance can be enhanced with the growing use of technologies, e.g., real-time tracking systems, automation, and data analytics. As the logistics industry is further invested in and as investments are made with policy assistance India can better its standing in the international marketplace.

Supporting Studies on Logistics Performance

Some scholars have been able to examine the significance of logistics performance and its effect on economic growth and efficiency of trade. Arvis et al. (2018) state that the Logistics Performance Index created by the World Bank is used to assess the efficiency of the logistics of the country, which is determined by its customs performance, the quality of infrastructure, international deliveries, logistics competence, tracking and tracing, and timeliness. Their work has emphasized that the countries that show more logistics performance levels are more likely to have quicker economic development and trade competitiveness.

On the same note, Hausman, Lee, and Subramanian (2013) also indicated that an effective logistics system lowers the cost of transportation and also increases reliability of a supply chain. Their study established that better infrastructure, access to ports and customs practices have the potential to impact the performance of the trade and the logistics ranking of a country positively.

A different article by Marti and Puertas (2017) demonstrated that the efficiency of logistics is crucial in international trade and global supply chains. The authors explained that those countries which invest in transportation infrastructure, adoption of technologies, and reform of the regulations have higher chances of attaining a superior logistics performance.

Recommendations for Improving Logistics Performance

To increase trade efficiency and economic development in India, it is necessary to improve logistics performance. The improvement of the transport infrastructure, highways, railways, and port infrastructure is one of the main suggestions. Enhanced connectivity of big cities with rural areas will help to minimize delays in transportation and the cost of logistics. The other recommendation that is of significance is easing customs processes and regulatory systems. The goods movement can be made more efficient and quicker by introducing more digital platforms and decreasing bureaucratic procedures. This will facilitate global trading and the overall logistics situation will be enhanced. Another important issue in enhancing the performance of logistics is the implementation of the latest technologies. Real-time tracking systems, automation, and logistics management software are the technologies that could assist companies to monitor shipments, enhance transparency, and optimize the activities in the supply chain.

Challenges and Key Factors Affecting India's Logistics Performance Index Infrastructure Limitations in Logistics Development

Infrastructure constraints continue to be among the key problems that influence the logistics performance of India. To Arvis et al. (2018), a transport

infrastructure in the form of roads, ports, and railways is a decisive factor in the Logistics Performance Index ranking of a country. In India, even though there has been a tremendous development of highways and modernization of ports, some parts of the country experience a problem of connectivity and delay in transportation. Equally, Rodrigue (2020) emphasized that lack of infrastructure and decreased capacity in large logistics centers can raise transportation expenses and decrease supply chain performance. Thus, the key to the logistics performance of logistics in India and the competitiveness of global trade is the consistent investment in logistics infrastructure and transportation networks.

Inefficiencies in Customs Clearance Procedures

Another factor of relevance to the performance of logistics in India is the inefficiencies in the customs clearance processes. Hausman, Lee and Subramanian (2013) argue that delay in the cross-border transportation of goods may be caused by complicated customs policies and time-consuming paperwork. In India, some processes are still associated with delays in the customs clearance despite the activities like the digital documentation, and the adoption of the Goods and Services Tax (GST), which have made some processes easier. Equally, Arvis et al. (2018) observed that effective customs are critical in enhancing the ranking of the Logistics Performance Index of a nation. Thus, the effectiveness of the logistics operations may be greatly improved by simplifying the regulatory procedures and making them more digitalized.

High Transportation and Logistics Costs

Expensive cost of transportation and logistics is also a great challenge to the logistics performance of India. Marti and Puertas (2017) found that transportation cost is relevant in defining the efficiency of the logistics system of a country, and its competitiveness in international trade. The cost of logistics in India is estimated to be high than most of the developed countries because of the fuel prices, infrastructure disparities, and transportation delays. Equally, Rodrigue (2020) emphasized that transportation networks that are poorly designed to plan their routes and have congestion can further add to the logistics costs. The transportation cost can be reduced by enhancing infrastructure, proper route planning, and efficient logistics management systems to score much higher in the Logistics Performance Index in India.

Lack of Advanced Technology Adoption in Logistics

Another issue that influences the effectiveness of logistics processes in India is the low rate of the use of modern technologies. Christopher (2016) says that automation, data analytics, and real-time tracking systems are modern technologies that are necessary to help enhance efficiency in the supply chain and performance of logistics. Nevertheless, the traditional approach to the

management of the logistics activity continues to be used by many small and medium logistics companies in India. Likewise, Rodrigue and Notteboom (2020) also stressed that transparency and operational efficiency could be increased with the help of the practice of digital logistics platforms and intelligent transportation systems. Thus, the greater use of technology has the potential to enhance the logistics performance in India.

Poor Coordination Among Supply Chain Stakeholders

Lack of good coordination among various stakeholders within the supply chain may have a detrimental impact on the efficiency of logistics. As noted by Christopher (2016), supply chain operations require the coordination of activities of manufacturers, transporters, warehouse operators, and distributors. The logistics industry in India has been very fragmented with a large number of small services providers operating independently. This will result in delays, poor communication, and poor logistics activities. On the same note, Hausman et al. (2013) observed that improved information sharing and cooperation between supply chain partners have the potential of enhancing logistics performance. Improving coordination and integrating the supply chain activity can greatly contribute to the overall logistics efficiency.

Inadequate Warehousing and Storage Facilities

Poor warehousing and storage system is a major problem in the Indian logistics industry. Rushton, Croucher, and Baker (2017) assert that effective warehousing systems are significant in ensuring smooth flow of goods in the supply chain. Most of the warehouses in India do not have advanced infrastructure, automation, and an effective inventory management system. This leads to time wastages in dealing with goods and it adds up to the cost of operations. Likewise, Christopher (2016) emphasized that logistics can be made more efficient with the help of modern warehousing facilities and sophisticated technologies in storage. Thus, the Indian logistics performance can be improved by investing in modern warehouses and improved inventory management practices.

Traffic Congestion and Transportation Delays

The factors that contribute immensely to the efficiency of logistics in India are traffic congestion and transportation delays. Rodrigue (2020) states that the level of congestion in urban transportation systems can increase the cost of logistics and delivery time considerably. Traffic jams and ineffective roads management in the big cities of India usually slows down the transportation of goods. These delays decrease the quality and speed of logistics services. On the same note, Marti and Puertas (2017) affirmed that transport networks are crucial in enhancing the logistics performance of a country. As such, roads should be

improved by installing better traffic control mechanisms and better roads to minimize delays in transportation.

II. CONCLUSION

Logistics Performance Index (LPI) of the World Bank is a renowned tool of global benchmarking which gauges the efficiency of trade logistics and supply chain in a country. LPI has six central areas of concern, namely, the efficiency of the customs, the quality of the infrastructure, the ease of organizing international shipments, the competence of the logistics services providers, tracking and tracing, and the punctuality of the shipments. Considering the significance of logistics as a factor that enables trade competitiveness and economic development, the research into the India's LPI performance may present a highly valuable source of information on the attempts of the country to make its logistics industry stronger. The paper uses the World Bank publications on the India's LPI of 2007-2023 to analyze secondary data to provide a trend analysis of the India's performance in LPI. The research adopts a descriptive and analytical approach in assessing the change in the status and general scores of India's over the years between the various surveys. The outcomes of the research indicate the wavering of the place of India's in the world ranking, the moments when it dropped and when it significantly gained after the changes in the policies and investments in infrastructure.

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