ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202001_2(11).0008

Research Status of Factors Affecting National Logistics Performance

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Abstract

With international competition and the increasing trade dependence of countries, logistics management has become an important way for enterprises and countries to enhance their competitiveness. Decision makers in various countries have realized that it is far from enough to consider logistics management at the enterprise level. Due to the development of strategic management, logistics management has shifted to the industry and national level. Improving logistics performance has become an effective integration into global value chains, maintaining economic growth and upgrading the country. The core strength and determinants of competitiveness. Improving logistics performance at the national level can give full play to the role of the logistics industry as a national economic artery system, effectively connecting production, circulation and consumption, and improving the efficiency of the national economy. Since 2010, experts from dozens of developed and developing countries, including China, the United States, Germany and Japan, have jointly formed an international expert group on logistics performance evaluation to promote the country's economic growth and promote global economic growth.

Keywords

Logistics Performance; National Logistics; LPI.

1. Introduction

The World Trade Organization (WTO), the Asia-Pacific Economic Cooperation (APEC) and the European Commission (EU) attach great importance to the promotion of national logistics performance to international trade. From the perspective of multilateral agreements, the WTO multilateral Trade Facilitation Agreement entered into force on February 22, 2017, and the implementation of the agreement will reduce global trade costs by about 14.3%. From the perspective of regional cooperation, the APEC Trade and Investment Committee proposed an action framework for improving the regional supply chain from eight aspects in 2010. In 2012, the APEC Policy Support Group first used the Logistics Performance Index LPI to evaluate the Supply Chain Connectivity Action Plan. The 2014 APEC Supply Chain Connectivity Framework Action Plan External Indicators Update Report uses the World Bank Logistics Performance Indicators to analyze supply chain connectivity and major block improvement; the European Commission uses LPI for its traffic scoreboard and the 2013 EU Customs Union assessment.

In March 2015, China's National Development and Reform Commission, the Ministry of Foreign Affairs and the Ministry of Commerce jointly issued the "Vision and Action for Promoting the Construction of the Silk Road Economic Belt and the 21st Century Maritime Silk Road", which received high attention from the international community. The "Belt and Road Initiative" is an important part of policy communication, facility connectivity, trade smoothness, capital finance, and people's heart. The promotion of trade and investment facilitation is to give full play to the

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202001_2(11).0008

resource endowment advantages and cooperation level of countries and regions along the "Belt and Road". The important support, and in international trade, logistics is the most important to promote trade and investment facilitation. Therefore, it is of great practical significance to study how countries should improve logistics performance at the national level.

What areas should countries improve their logistics performance at the national level? For example, Wang Haotian pointed out that the development of the national economy and the improvement of national income are the main reasons affecting the LPI [1]. Yildiz T believes that the national education level and innovation ability are the main reasons affecting LPI [2], Khan S believes that information technology environment is a key factor to improve LPI level [3] and so on. It can be seen that the existing literature focuses on factors such as economy, education level, innovation ability, and information technology when analyzing factors affecting national logistics performance. The choice of factors affecting LPI is not combined with the characteristics of national logistics, and there is no unified theoretical framework between these factors. Therefore, this study draws on the theory of national competitive advantage, analyzes the factors affecting the performance of national logistics from the four aspects of production factors, demand factors, industrial factors, opportunities and government factors, and classifies countries by geographic location to explore different regions. The differences between the factors affecting the performance of national logistics performance, expand the applicability of its conclusions for different regions. The research in this paper helps to provide reference for multinational investment companies and provides corresponding reference for countries in the national logistics reform.

Based on the above background, this paper asks the following questions:

(I) What factors will affect the performance of national logistics?

(II) What is the impact of these factors on logistics performance and the reasons for its impact?

2. Literature Review

2.1. National Logistics

National logistics is generated along with the development of international trade. It is a logistics activity between different countries. The whole process starts from the exporter's factory and the importer's warehouse is the end point [4]. Therefore, national logistics includes two aspects: one is the domestic flow of goods before customs clearance (after entry), and the other is the flow of goods between countries after customs clearance.

This paper draws on the definition of logistics in countries and the flow of goods in national logistics, and defines national logistics as: when the supply and demand occur in different countries or regions, the commodity physical entity to overcome the spatial and temporal contradictions Cross-border flows between different countries and regions, as well as storage, planning, implementation and control processes for effective cross-border flows.

2.2. Logistics Performance and Logistics Performance Index

In 2007, the World Bank released the Logistics Performance Index (LPI) for the first time [5], which became the first comprehensive evaluation index for the development level of logistics performance in various countries, and then released every two years (see 2010, 2012, 2014, respectively). , 2016 and 2018 "Logistics Performance Index Report" [6-9]). The logistics performance index was established by issuing more than 5,000 questionnaires to nearly 1,000 international freight forwarders, express airlines, and shipping companies in 160 countries.

The Logistics Performance Index (LPI) is not only an important indicator reflecting the development level of the logistics industry in various countries, but also an important indicator reflecting the degree of trade facilitation. Although the logistics performance index does not cover the full content of trade facilitation [10], it still reflects countries including Customs (CUS),

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202001_2(11).0008

Logistics Infrastructure (INF), International Shipment Facilitation (International Shipments, The level of six indicators including ISH), Logistics Quality and Competence (LQC), Tracking and Tracing (TTR) and Timeliness (TIM). The above indicators are scored on a 5-point scale. The higher the score, the higher the performance level of the corresponding indicators.

The improvement of trade logistics performance will help to improve the level of trade facilitation and economic competitiveness, and promote economic and trade growth. The higher the score of a country's logistics performance index, the higher its supply chain level, the lower the trade cost, and the better connection with the global value chain [11]. For the evaluation of logistics performance, Zhang Baoyou et al [12] considered that it is a global and holistic evaluation of the logistics system described by multi-attribute architecture. Sawik [13] pointed out that logistics performance evaluation reflects the logistics operation status under certain customer service levels. Subsequently, domestic and foreign scholars constructed a research framework for logistics performance evaluation from different dimensions. In the dimension of national logistics performance evaluation, the World Bank and the Turku Institute of Economics in Finland proposed the National Logistics Performance Index (LPI), which provides a reference for governments to formulate logistics industry development policies.

2.3. Research status of National Logistics Performance

From the perspective of existing academic ideas, logistics performance research is roughly divided into three directions: enterprise logistics performance, industry logistics performance and national logistics performance [14]. This paper focuses on logistics performance at the national level.

Improve logistics performance at the national level, can fully play the role of the logistics industry as a national economic artery system, efficiently link production and LPI data for analysis, and point out that when GDP, population, and distance between China and the country are fixed LPI has the greatest impact on China's agricultural exports; Ma Yuan et al. constructed a petroleum trading network for 25 countries along the Silk Road Economic Belt, analyzed the characteristics of the petroleum trading network structure by network analysis, and used the QAP model. Analyze the influencing factors of the oil trading network, and point out that the greater the LPI gap is, the more difficult it is to establish close trade links between countries [15].

First, propose ways to improve the performance of national logistics

Other scholars propose ways to improve the performance of national logistics based on the relationship between national logistics performance and international trade.

Studies by Burmaoglu & Sesen [16] have shown that countries with lower LPIs must prioritize improvements in logistics infrastructure and customs clearance environments. Only when the logistics infrastructure and customs clearance environment reach a certain level can it become a high LPI country. Since then, in order to maintain competitive advantage for a long time, it is necessary to further improve cargo tracking and traceability; García et al. [17] constructed a total LPI synergy index (DEA-LPI) and decision-making unit (DMUs) through the DEA method, and proposed to improve national logistics performance. Ways; Su Xiongyi and Ke Jianyu [18], Ojala & Çelebi [19] used Taiwan and Turkey in China as examples to identify logistics weaknesses and explore how to improve national (regional) logistics performance; You Mingmin and Xiao Bo [20] Divided into high-income OECD countries, high-income non-OECD countries, middle- and high-income countries, low- and middle-income countries, and low-income countries, establishing a meta-DE-AR model and proposing ways to improve national logistics performance.

Second, the study of the factors affecting the performance of national logistics

Chow G et al. [21] studied the definition and measurement methods of logistics performance; Anderson Anderson RD et al. [22] discussed the impact of quality management on logistics

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202001_2(11).0008

performance; FugateB S et al. [23] from the perspective of efficiency, effectiveness and differentiation The logistics performance is described; Yildiz [2] studies the relationship between logistics performance and education, and concludes that education helps to improve LPI and various indicators; Sipos [24] empirically analyzes innovation index SII and LPI The relationship between the two is to quantify the impact of SII on the indicators of LPI; Bakar MAA[25] and others based on LPI, measure the logistics performance from the user's point of view, and analyze the impact of environmental friendliness on LPI. The results show that the logistics facilities are The key to the impact of LPI; Sule et al. [26] proposed that the country's competitiveness is closely related to the country's logistics performance, and used the artificial neural network model and cumulative trust method to analyze the logistics performance of Turkey, the research shows that the logistics performance is related. Among the many factors, the availability of fixed broadband Internet has a significant impact on LPI; Khan [3] studied LPI and adjusted based on data from 15 specific countries from 2007 to 2015. The relationship between carbon dioxide and fossil fuels indicates that the regulation of developmental indicators has a significant impact on LPI; Faria RND [27] proposed that bureaucracy is the main obstacle to national logistics performance, and the difference between logistics performance indicators is subject to government public Through the policy and the efficiency of the implementation of government-related personnel; Martí L [28] used data envelopment analysis to study national logistics performance, the results show that income and geographical environment are the main reasons affecting LPI.

Wang Lin and other two market method theories based on Rajan, from the micro-factors affecting international logistics performance, cross-border payment, electronic customs clearance, technology application and other aspects of empirical analysis, found that laws and regulations through cross-border payment, technology applications, electronic customs clearance Affects international logistics performance, while cross-border payments, technology applications and electronic clearance directly affect LPI [29]. Wang Haotian used the structural equation model to analyze the economic situation, information technology, international trade scale and trade system environment from the macroscopic analysis, which has a significant impact on international logistics performance.

Third, the study of qualitative analysis of logistics performance in different countries

After the release of "Connecting to Compete: Trade Logistics in the Global Economy", many scholars have conducted a qualitative analysis of the LPI performance of each country in order to analyze the differences between the countries through LPI and grasp the inherent laws of LPI development.

Yan Fei et al. conducted a descriptive analysis of LPI among countries in the Silk Road Economic Belt, and conducted a comparative analysis of the differences between LPI and its sub-indicators in China and Central Asia, and proposed the level of customs modernization, the quality of logistics infrastructure, The degree of modernization of information technology, national policy levels, and institutional environment are key factors limiting the performance of a country's logistics. Bilovodska et al. used LPI to further analyze the potential of Ukrainian logistics, and based on this, proposed the key elements for measuring the potential of logistics, and used this factor to evaluate the potential of logistics in Ukraine. Yang Zhenhua uses LPI indicators to analyze the logistics performance levels of relevant countries and regions in the G20 economies, and compares the logistics performance levels of developed country groups and other emerging market countries, and sorts out the characteristics of the G20 logistics development. Further clarify the ranking of China's logistics performance level in the G20 and the distance between developed countries and developed countries, and provide reference for logistics development decisions in relevant countries and regions.

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3. Methods

3.1. Research Theory

Most of the research on the theory of national competitive advantage applies Porter's theory of national competitive advantage in the following three aspects: first, the study of combining enterprise competitiveness; second, combining research on industrial competitiveness; third, combining countries Competitive research. Countries with high logistics performance can effectively improve the efficiency of goods flow between countries, reduce the cost of international trade, and promote the development of international trade. Countries with low logistics performance will bring time and cost waste to enterprises and countries, directly affecting enterprises and countries. Competitiveness. However, there is almost no research on the application of the theory to the performance of national logistics. This paper applies the theory of national competitive advantage to the factors influencing the performance of national logistics, and then conducts research.

3.2. Research Perspective

Domestic research focuses on the impact of logistics performance on international trade, import and export, etc., while foreign research pays more attention to the study of the influencing factors of logistics performance, and most of them are the impact of individual scattered factors on logistics performance. In the study of the factors affecting logistics performance, scholars rarely use the theoretical framework to integrate the selected index system, but this paper builds an indicator pool through the theory of national competitive advantage, and relatively systematically studies the factors affecting logistics performance.

3.3. Research Methods

The existing scholars use qualitative or quantitative analysis of the logistics performance index of each country, in order to analyze the difference between the countries through the national logistics performance index, and grasp the inherent law of the development of national logistics performance. This paper classifies countries by geographic location, and adopts a combination of qualitative and quantitative methods to explore the differences between groups of factors affecting logistics performance in different regions, and expand the applicability of its conclusions to different regions.

4. Conclusions and Discussion

4.1. Theoretical Significance

Expanded research on national logistics performance. This paper combines the activity process of national logistics with the theory of national competitive advantage. From the four aspects of production factors, demand factors, industrial factors, opportunities and government factors, this paper analyzes the factors affecting the performance of national logistics, and draws on the predecessors. Based on the high-frequency sub-variables, the relevant research carried out the selection of variables based on the characteristics of national logistics, and empirically analyzed the factors affecting the performance of national logistics.

Expanded the relevant research on the theory of national competitive advantage. In the study of the factors affecting logistics performance, few scholars apply the theory of national competitive advantage to the field of logistics performance. This paper will build an indicator pool through the theory of national competitive advantage and study the factors affecting the performance of national logistics.

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4.2. Practical Significance

Provided recommendations for logistics reform in various countries. In the past, when countries were reforming the country's logistics, they often focused on the weak links of the supply chain or blindly followed the trend, resulting in ineffective reforms. The research in this paper helps to expand the horizons of countries in the national logistics reform and provide corresponding reference for them.

Provide a reference for multinational investment companies. National logistics performance is usually one of the factors considered by multinational corporations in investment decision-making. The research in this paper helps multinational investors to find out the reasons for influencing the performance of a country's national logistics, and to improve investment efficiency.

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