

LOGISTICS PERFORMANCE INDEX (LPI) AND INCENTIVES FOR LOGISTICS PERFORMANCE IMPROVEMENT IN BULGARIA

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Abstract: The article presents an assessment of the current logistics performance in the Republic of Bulgaria. The logistics performance of the country is evaluated in terms of the components affecting the logistics regulations and operations. The role of the Logistics Performance Index (LPI) is outlined as well as its methodological background. As LPI level is a function of numerous factors, the enhancement of logistics performance asks for large-scale reforms both from the private sector and policy makers. It is ascertained that it is vital to define the relationship between LPI and the logistics policy objectives thus transforming LPI individual values into applicable actions.

Keywords: LOGISTICS PERFORMANCE, TRADE LOGISTICS, LOGISTICS PERFORMANCE INDEX

1. Introduction

Indicators for measuring the national logistics performance are vital for efficient policy and operational regulations. The World Bank's Logistics Performance Index (LPI) is a valuable tool that allows for comparison and measurement of the transport and trade facilitation policies of countries. The analysis of the components of the countries' LPI ensures for improvement of freight transport efficiency and identification of options for better international cooperation. Efficient and competitive trade logistics at national and regional levels requires profound multilevel assessment of the transport and trade regulations, taxes, investment in infrastructure and transport corridors. The present article presents evaluation of the trade and transport policy via a case study of Bulgaria. Detailed presentation of the LPI and its methodology are outlined followed by a study presenting the effect of the diverse policy measures on Bulgaria's logistics performance.

2. Overview of the Logistics Performance Index (LPI)

LPI is an internationally adopted tool for measuring the trade and logistics facilitation in a given country. LPI promotes the understanding of key issues and options for improvement of logistics performance. The LPI entails several components assessing the logistics environment: customs clearance performance, quality of transport infrastructure, competitive and efficient shipment process, logistics process quality, international tracing of shipments, international shipments frequency.

LPI also allows for assessment of logistics performance trends while performance is measured through a five-point scale. The general LPI of a country is the weighted average of the above mentioned components. In addition, the LPI is a tool providing quantitative data on specific aspects of country's export and import procedures, delivery times, costs related to supply chains, customs clearance procedures and the percentage of shipments subjected to physical inspection [2].

Policy measures have direct impact on a country's image as a business environment or foreign investments. The efficiency of the transportation system and inventory are directly related as higher turnover allows for shorter delivery time, higher responsiveness to demand changes and lower costs of transportation. On the other hand, transport infrastructure has a significant impact on the productivity and the cost structure of businesses [3]. The efficiency of the logistics systems is vital for ensuring economic development and attracting foreign investment. The index is applied for identification of the issues and opportunities as concerns each country's transport infrastructure, logistics and supply chains efficiency. Countries at similar performance levels may have substantially different ranks, especially in the middle and lower country income ranges [5].

The LPI report of the World Bank presents the countries' weighted average of LPI. To account for potential sampling error and the LPI's limited domain of validity, LPI scores are calculated with approximate 80% confidence intervals over the standard error of LPI scores across all respondents [1]. The case study of Bulgaria is based on a general view analyzing the various processes and existing bottlenecks that affect substantially the logistics competitiveness.

3. Logistics performance in Bulgaria: issues and challenges

The case study is based on several stages. The first stage is based on disaggregation of the key components of logistics performance, outline of the current state and planned transport infrastructure, policies and logistics services bottlenecks that impact the countries' trade competitiveness. The first stage was carried out via collecting information from official reports and statistical data. The next stage concentrates on evaluation of the state of transport policy environment via interviews with several companies specialized in logistics services. Thus the effect of the policy regulations on Bulgarian freight and logistics performance based on the LPI is evaluated. Bulgaria has an important geographical position and as such plays an important role in transportation and trade between Europe and Asia. The development within the adjacent regions - the Black Sea countries, the Balkan countries, the Mediterranean, the Caucasus region and the Middle East have further promoted the importance of Bulgaria as an important transport node. The newest available World Bank Logistics Performance Indicator ranking (LPI 2016) places Bulgaria in a relatively fair position ranking number 72 among 160 countries, with an overall score of 2.81 on a scale from one to five. Figure 1 presents Bulgaria's overall LPI score and LPI's components in 2016 as compared with the levels of the region.

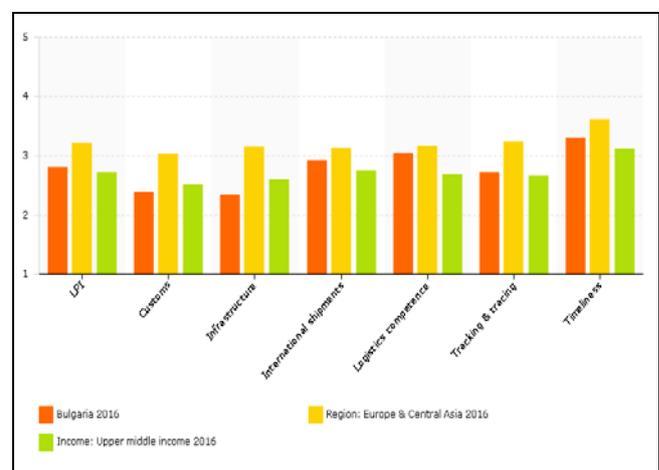


Figure 1. Bulgaria's LPI and regional comparison in 2016 [7]

The general LPI score of Bulgaria for the period 2007-2016 is based on the scores of four LPI components and is presented in Figure 2.

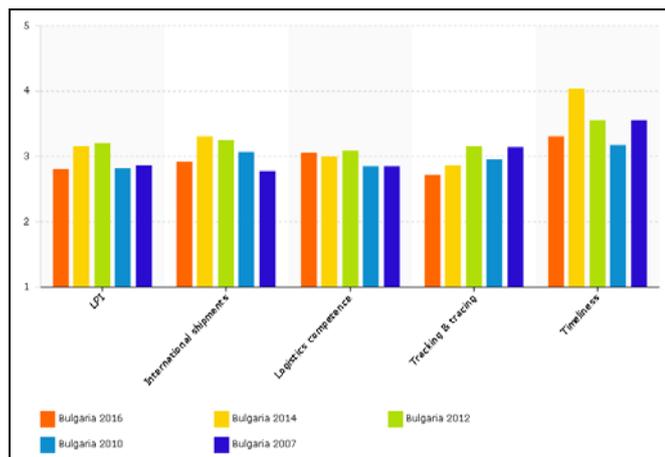


Figure 2. Bulgaria's LPI score trend for the period 2007-2016 [7]

The considerable increase in Bulgaria's general LPI score between 2012 and 2014 is the outcome of the enhancement in transport infrastructure (both road and ports development), improvement of international shipments tracing and facilitation of customs procedures via adoption of National Single Window in customs administration. The levels of timeliness of international deliveries have been dropping since 2014 while tracking and tracing of shipment have risen.

According to [4] enhancement of logistics quality have a better impact on exports than on imports. In general, 10% increase in the specific exporters' LPI score leads to increase by over 60% of bilateral imports, all other factors being equal. For Bulgaria the effect would be +21% for import and +30% for export if Bulgaria's LPI could reach that of the average high-income OECD countries. Comparable levels of this impact can be evaluated for the rest of the LPI components. For example, an increase by 10% of infrastructure quality (as a LPI component) would result in 30% increase of seaborne trade. Thus the LPI components correlations give an insight on the relations between international trade development and logistics performance. Further, a 15% enhancement of the customs procedures quality indicator would result in an increase by 35% for bilateral trade flows, including seaborne trade. As mentioned, the development of infrastructure is vital for ensuring connectivity. Presently, the inland transportation connections are still not well developed due to lack of investment. Rail transportation is also at a stage of being underdeveloped mainly due to non-sufficient equipment and maintenance. As for Bulgaria, infrastructures in maritime and rail transport rank below average, with a ranking of 53rd in quality (Figure 3).

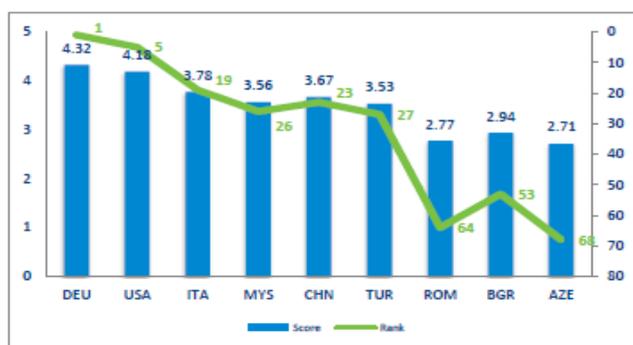


Figure 3. Transport infrastructure quality: LPI score and rank among 160 countries [1]

The possible improvement of LPI infrastructure quality score would depend on financing from EU projects and policy actions for

the enhancement of transport infrastructure competitiveness and activation of private stakeholders' participation in infrastructure development. During the last decade, the logistics connectivity has been considerably improved via construction of Trakia highway, ensuring for better connectivity via the trans-European corridor No 4. The investment plans for the expansion and reorganization of Varna port would result in increase of container handling volumes and storage capacity of dedicated container terminals. Irrespective of the infrastructure investments in maritime transport, cargo handling in the ports of Varna and Bourgas is still restricted due to lack of efficient hinterland connections. The latter causes higher delays on cargo delivery to the ports and, respectively, longer storage times at the ports prior to delivery to the customers.

The establishment of the National Single Window for shipping and the development of the local Port Community System allows for better communication between all stakeholders. The ease of arranging competitively priced shipments is at a moderate level component – 3.31, commensurate to the levels of other countries in the region (Figure 4).

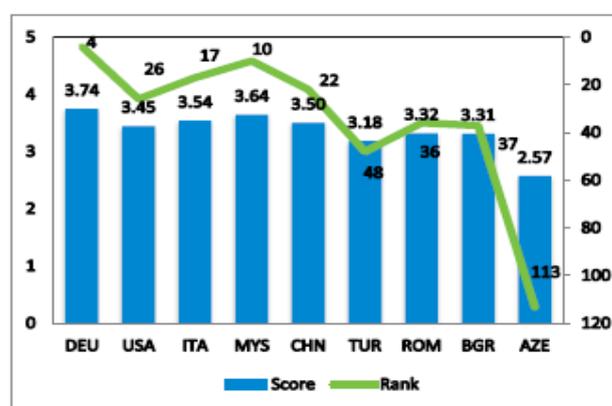


Figure 4. Ease of arrangement of competitively priced shipments: LPI score and rank among 160 countries [1]

One of the greatest hindrances to road transport and trade network development is the high costs of energy. For example, diesel fuel costs amount at up to 55% of operating costs for long-haul destinations. Having considerably high energy costs in Bulgaria, logistics companies seek to invest in more efficient road vehicles and invest in intermodal transportation solutions, the latter creating a competitive advantage for the company. The incentive to invest in intermodal transport is further impeded by the fragmented market and the small-sized logistics companies resulting in lack of higher profit levels and accessible capital. The lack of appropriate intermodal equipment is another issue for the industry and the country still lacks national policy incentives in this respect.

As concerns ease of market access and attraction of foreign direct investment there are still pending issues mainly due to administrative burdens and lack of coordination between authorities. The latter is an obstacle to the competition in the industry and impedes international transfer of know-how and technological innovations. There is lack of global policy view encompassing the development of the transport networks rather than focusing on a certain transport mode development.

The LPI's component for measuring the quality of logistics services and operations evaluates the general logistics level of a particular country. The performance of Bulgaria in this respect is moderate at a score of 3.0 and ranking 55th among 160 countries.

Despite the highly fragmented market, the country can offer diverse services in logistics ranging from customs representation, transportation, bonded warehousing and intermodal services. Road and maritime transportation are well developed in terms of quality services as well as forwarding and supporting services.

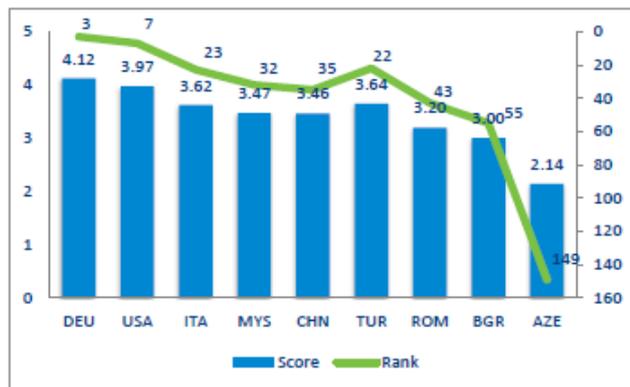


Figure 5. Quality of logistics services: LPI score and rank among 160 countries [1]

The private sector for providing logistics services is highly internationalized mainly due to EU companies' mergers and acquisitions. Generally market entrance is less difficult for EU companies. The latter is a direct factor for increase of sector competition and transfer of know-how and franchise. One of the main issues on a national level is the lack of skilled personnel with expertise and insufficient research and development. Although, at a national level, there are several programs for development of professional education in logistics and transportation same still lack practice orientation especially for lower management levels.

Tracking of shipment is the outcome of the expanded communication between logistics stakeholders via introduction of ICT solutions. Higher level of traceability ensures for safer and reliable supply chains and lowers business risk. Nevertheless, the LPI score of the ability of tracking and tracing shipments in Bulgaria is still at a moderate level of 2.88 ranking the country 76th in 2014 (Figure 6).

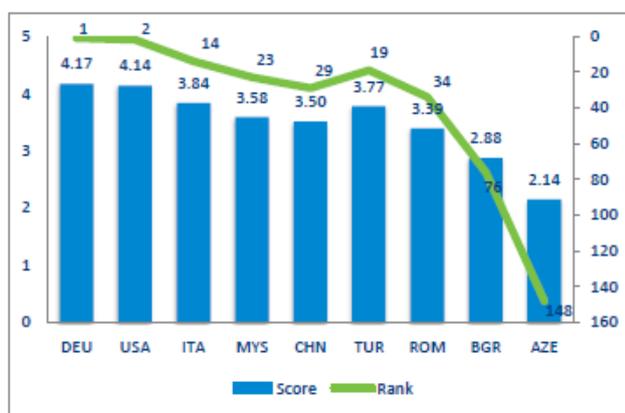


Figure 6. Ability to track and trace consignments: LPI score and rank among 160 countries [1]

There is a need to introduce widespread use of ICT solutions especially for exchange of information between the public and private sectors. Thus the tracking and traceability performance will be improved via collecting and processing of information on all shipments, services and government regulations. Furthermore, companies' product information, services specifics and freight rates will be easily accessed by potential customers. The main issue impeding the investment of ICT in logistics is the high risk of investment and the associated uncertainties – for example, national communication policies. Hence, policymakers need to keep up with the rapid development of ICT and develop a stable communications framework that is conducive to logistics planning by the private sector [5].

The reliability of delivery times is measured by the timeliness of shipments in reaching destination. The performance of Bulgaria for this LPI component is relatively high as compared to other countries – score of 4.04 and ranking 24th (Figure 7). Generally, the

duration of shipment will depend on the type of product, logistics services provided, the transportation distance as well as on various external factors (political and war risks, unfavorable weather, etc.)

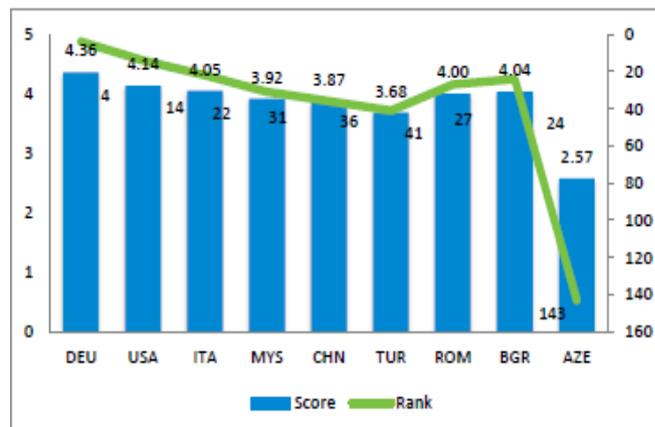


Figure 7. Timeliness of shipments in reaching destinations: LPI score and rank among 160 countries [1]

The reliability of the supply chains is generally measured by the timeliness of the delivery. However, longer lead times do not always mean unreliability but instead are the outcome of steady demand trends and higher predictability. On the contrary and due to the present market situation, maritime transshipments are causing the highest level of delivery delays mainly affected by the operators need to cut on costs. As concerns road transport, indirect routes are often used which have capacity restrictions. The latter leads to longer delivery times and, respectively, to higher shipment costs. For the reason of capacity constraints of some of the roads, trucks are also experiencing longer off-duty periods which creates further burden on costs.

Border crossing procedures may also create uncertainties and unpredictability causing delays for road transportation thus leading to higher costs for the customers and sometimes loss of business opportunities. For example, in 2014 a transit permit crisis that loosed the border between Turkey and Bulgaria for almost two weeks has created a truck queue of over 10 kilometres, waiting for border crossing [5]. Transporters immediately turned to alternative routes to transport goods to Europe, yet the absence of one of the major and cheapest transit options has created huge losses [5].

4. Conclusion

The present article has outlined the significance of policy development for enhancement of logistics performance. The application of efficient policies in this respect will improve the stakeholders' capability to trade more competitively on international markets. For Bulgaria, it is vital to ascertain a clear correlation between LPI's performance indicators and the national transport policy. The latter will allow for transforming LPI's indicator values into corresponding actions and promote further development.

The results of this study show that despite the moderate levels of logistics performance in Bulgaria there is still room for improvement as concerns quality of infrastructure and logistics services. As discussed, the overall LPI score is a function of diverse factors having intricate internal correlation. It is evident that the improvement of logistics performance is a long-term and complex objective which requires large-scale reforms and long-term policy undertakings.

Port infrastructure in Bulgaria is still underdeveloped mainly due to the unavailability of reliable hinterland connections with highways and railways which creates longer dwell time in ports and terminals. Further, the predominance of road transportation and

higher energy costs cause higher transportation and maintenance costs, unfavorable impact on the environment, traffic congestion and lower level of road safety.

The logistics performance in Bulgaria is mainly upheld by the private sector stakeholders. In addition, during the last five years, the government has implemented various actions for development of logistics competencies in the private sector – competition promotion, introduction of quality standards, subsidizing of professional organizations, decreasing the administrative burden of business licensing and introduction of industry standardization. Due to diverse externalities the main focus should be on business risk prevention and lowering of investment risks in order to reduce the vulnerability of the logistics systems. The introduction of ICT solutions will lead to higher risk visibility of the network and will promote the application of advanced and efficient policy actions.

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