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LOGISTICS AS A DRIVER OF INTERNATIONAL TRADE: AN INDUSTRY-LEVEL ANALYSIS

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The growth of global trade in the last few decades and a more active involvement of countries in trade flows and supply chains have highlighted logistics as one of the most important trade facilitation factors. However, the question is who benefits the most from logistics. The paper aims to examine the contribution logistics make to the promotion of exports and imports in the selected industries in the OECD countries, the evaluation and comparison of the importance of logistics performance depending on the specific sector and product characteristics. Panel regression modelling was employed to evaluate the impact of logistics on international trade. The findings reveal its importance in international trade at the industry level. The results indicate a special contribution of logistics to the stimulation of the trade of industrial products and time-sensitive goods, with a greater contribution to imports. These findings emphasize the special importance of a logistics system and related operations in the identified sectors.

Keywords: logistics performance, industry-level trade, product group, export, import

JEL Classification: F13, F14, L52, L9

INTRODUCTION

The structure of world trade reveals a dominant role of the different types of the commodities that heavily rely on infrastructure, transport, and related logistics services in cross-border operations. Small open economies and developing countries need to find a way for more efficient movement across borders. While trade is increasingly organized through value chains, logistics is becoming the "glue" on the global and regional levels that holds value chains together (World Trade Organization, 2021). However, the starting point is the assumption that its importance can differ significantly, depending on the economic structure, the dominant participation of individual sectors, and the importance of logistics operations in international trade, by specific industries and product groups.

The quality of logistics operations and related infrastructure is an important factor for the companies operating in various industries that strive to engage themselves in cross-border trade. Logistics

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performance includes requirements regarding the quality of physical, "hard" infrastructure, as well as the "soft" logistics components related to the efficiency of customs procedures and the quality of logistics service (Ojala, Arvis, Shepherd, Wiederer, Raj, Dairabayeva & Kiiski, 2018). According to Ü. Töngür, K. Türkcan and S. Ekmen-Özçelik (2020), exports strongly depend on infrastructure and are more sensitive to national logistics performance. Regarding the "soft" component, certain studies see the efficiency of customs as an important, even decisive factor within the framework of logistics performance for competitiveness (Ekici, Kabak & Ülengin, 2016). The contribution of logistics services can be seen through the costs and time components in certain product groups. J. Blyde and D. Molina (2015) determined that the transport of time-sensitive and perishable products has the greatest dependence on transport time. Also, semi-finished products, parts and components, which are mainly used in further production processes, significantly depend on transport and logistics efficiency (Hummels & Schaur, 2013; Saslavsky & Shepherd, 2014).

The importance of logistics has already been recognized in incentivizing the total volume of international trade (Martí, Puertas & García, 2014; Gani, 2017; Çelebi, 2019; Zaninović, Zaninović & Pavlić Skender, 2021), and in promoting competitiveness and economic growth as well (Bugarčić, Mićić & Stanišić, 2023). However, no empirical evidence has been found at the industry or product level. This gap raises doubts about the specific contribution of logistics to trade promotion by product groups. Based on the existing knowledge, there is still no evidence showing in which sector efficient logistics yields the most significant results. The main goal of this study is to investigate the impact of logistics performance across individual product groups and identify and explain the differences between the selected sectors. Such evidence could clarify the significance of logistics performance for particular industries. Additionally, the scope of the analysis is expanded by using industry-level data for exports and imports separately in the OECD countries. This approach reduces the influence of external factors on the total volume of countries' exports and imports. Using panel data and a linear regression approach, the article aims to identify and compare the impact of logistics, measured by applying the Logistics Performance Index (LPI) on the selected industries, and identify the specific sectors that are more reliant on logistics performance. This concept could provide an answer to the research question posed in this study: Which industry is most dependent on logistics performance in terms of exports and imports?

The article is structured into several sections. After the introduction, the literature review pertaining to international trade at the product/industry level is presented. In the third section, the methodology and the data are explained, and in the fourth section, the results of the empirical analysis and discussion are given. The final section presents the concluding remarks.

LITERATURE REVIEW

Previous studies have considered the factors contributing to export promotion at the level of product groups and sectors from different perspectives. T. Beck (2002) showed that economies with higher levels of financial development tended to specialize in the industries that were more dependent on external finance. B. Abu Al-Foul and M. Soliman (2008) found that FDI inflow had a positive effect on both merchandise and manufacturing exports. N. Gur (2013) examined whether financially integrated countries exported more in the industries that depended heavily on external finance or not. The findings showed that international portfolio equity investments increased exports more in the industries that depended heavily on external sources of finance. Institutional quality is also an important factor. S. Nazlioglu (2013) investigated the impact of the exchange rate volatility on exports and found that it differed across the industries and that foreign income played the key role in determining industry-level exports.

G. Bayar, M. Ünal and S. Tokpunar (2015) studied the structure of Turkish exports to the EU countries and found that the statistically significant variables were

the industrial production index, the sectoral export unit price index, the partner country's sectoral imports from the World, and the partner country's import prices. Differences in the level of the impact and significance were identified, depending on specific export markets and industries. H. Yilmazkuday (2021) also investigated the drivers of global trade at the product level. The findings indicated that the supply-side effects, including production or exporting costs in source countries, made the most important contribution to changes in global trade. In this respect, export-related costs, such as operational costs of exporting, could be crucial. Based on product-level trade decomposition, chemicals and allied industries made the greatest contribution to the supply-side effects.

Logistics quality is one of the key segments within the framework of the supply-side and operating costs of exports. Bearing in mind its contribution at the aggregate level, several studies have tried to determine the time and logistics sensitivity, depending on the product type. Using a relative gravity model of trade, S. Djankov, C. Freund and C. S. Pham (2010) examined how time lags affected trade. Their results indicated that each additional day of product delay reduced trade by more than 1%. The authors compared these data with the fact that one day of delay in the international delivery of a product was equivalent to an additional distance of 70 kilometers between trading countries. Delivery time is especially important for delay-sensitive products, such as perishables, food, and agricultural products and goods with limited shelf life and delivery. The conclusion based on this study imposes the necessity of creating more efficient distribution systems as a trade facilitation tool. Analogously, D. L. Hummels and G. Schaur (2013) estimated that each day in transit of goods was equivalent to an additional duty of 0.6 to 2.1%. They concluded that the most time-sensitive trade flows included trade in parts, semi-products, and production components, the delay of which would further delay production processes in the importing country. The COVID-19 crisis reminded us that sensitive and perishable products required special engagement and the timely management of logistics activities to ensure safe placement according to required quality standards (Illahi & Mir, 2021). P. A. Zaninović *et al* (2021) found intermediate goods to be more sensitive to trade than capital or consumption goods, indicating the need for further research into the contribution of logistics through research in different product groups within different classes of goods.

Within the framework of modern global supply chains (GSC), value-added export is more important than the total volume. For this reason, it is particularly important to determine the factors that contribute to the promotion of the export of goods with higher value-added, where the role of logistics performance has been identified when speaking about the aggregate level of countries' exports (Zaninović & Bugarčić, 2023). Here arises the question of the contribution of logistics in certain sectors. For several industries participating in global value chains (GVC), the countries identified as the most competitive based on the total exports are often found to be less competitive when evaluated in terms of domestic value-added (Ceglowski, 2017) and the main drivers for export value-added is an increase in the export scale and the multiplier effect (Wang, Zhang, Xie & Su, 2020). The importance of logistics is especially emphasized in the time of the expansion of e-commerce (Kiba-Janiak, Cheba, Mucowska & de Oliveira, 2022), where certain industries are faced with changes of earlier business patterns and special requirements in terms of delivery.

Looking at the importance of logistics by the observed sectors, a lack of the timely delivery of machines to customers and the unregulated purchase of goods associated with the delivery of the machines are among the many problems manufacturers are faced with (Sarabi & Darestani, 2021), which leads to further problems in the production and distribution processes if there is no adequate logistical support, in which sense, the production of the largest number of industrial products significantly depends on the development of the logistics sector, as well as continuous technical improvements and new solutions within these activities (Angreani, Vijaya & Wicaksono, 2020). The special importance and specificity of logistics operations are also recognized

in the oil industry, which carries special requirements in terms of distribution and delivery (Dempster, Pedron, Medova, Scott & Sembos, 2022). One of the most represented sectors is certainly the food industry and related product groups. In this sector, logistics is still a challenging issue affecting companies' performance and customer decisions, with a great potential to improve effectiveness and sustainability (Paciarotti & Torregiani, 2021). What is common to most industries is that the quality of logistics services impacts consumer loyalty to a great extent (Huma, Ahmed, Ikram & Khawaja, 2020).

For more precise conclusions, the role of logistics must be viewed individually by industry. Based on the current knowledge, this question needs to be further investigated.

RESEARCH METHODS

In order to investigate the impact of logistics on international trade at the industry level, the Logistics Performance Index (LPI) was selected as the main independent variable. The LPI was developed by the World Bank (Ojala *et al*, 2018; Arvis, Ojala, Shepherd, Ulybina & Wiederer, 2023) and represents the quality of national logistics systems, starting from 2007. It is one of the most comprehensive comparable measures of national logistics systems available for 166 countries. It includes all the regions of the world and countries at all stages of development. The LPI reflects a total of six aspects of logistics performance related to (i) infrastructure, (ii) customs efficiency, (iii) logistics services quality, (iv) timeliness, (v) the ability to track and trace, and (vi) the availability of competitively priced international shipments, separately in six subindices. Scores are evaluated for the overall LPI and individual elements, and range from 1 (the worst performance) to 5 (the best score). Moreover, another independent variable used in the current research is FDI (Foreign Direct Investment, measured by FDI net inflows as a percentage of GDP). FDI is important in the context of investigating the impact of logistics. The connection is proven in previous studies (Luttermann, Kotzab & Halaszovich, 2020; Bugarčić & Skvarciany, 2024), while the importance for international trade reflects in the influence of developing logistics infrastructure projects, which enhance the efficiency of supply chains, foster economic integration, and stimulate economic growth. Those determinants are critical factors in facilitating and expanding international trade. Another independent variable is IVA (Industry Value Added, measured in millions of dollars). It measures the productivity, efficiency, and economic contribution of industries, and helps identify the relationship between logistics performance and industry competitiveness, guides investment priorities, and allows for a detailed analysis of the impacts of logistics on specific sectors. This variable was chosen in this study to control for the results and reduce a potential bias, given that industry-level data were used. Exports and Imports were employed as the dependent variables. The sample includes the OECD countries, and the analysis covers the selected industries and the period from 2007 to 2018, chosen according to data availability.

Several industries were analyzed in the current research, namely food products, beverages and tobacco (Model 1), animal and vegetable oils (Model 2), machinery and equipment (Model 3), and manufactured articles (Model 4). A total of two equations were specified for each sector, the first treating Imports as the dependent variable, and the second treating Exports as the dependent variable.

In order to proceed with the linear panel regression analysis, it was essential to find out if the series were stationary or not. For this purpose, unit-root tests were done. All the variables, except the LPI, were balanced. Hence, the Levin-Lin-Chu test was applied to them. For the LPI as the unbalanced variable, a Fisher-type test was performed (see Tables 1 and 2).

In order to investigate which regression model was the most appropriate, the Hausman test was employed. According to the results, Model 1 (with both Imports and Exports) was a random-effect model (the p-value of the Hausman test was greater than 0.05). In Model 2, with Imports as the dependent

Table 1 The Levin-Lin-Chu test for the balanced data

Levin-Lin-Chu	Statistic	p-value
Imports (Model 1a)		
Unadjusted t	-4.7e+02	
Adjusted t*	-5.1e+02	0.0000
Experts (Model 1b)		
Unadjusted t	-11.9537	
Adjusted t*	-12.6719	0.0000
Imports (Model 2a)		
Unadjusted t	-55.3840	
Adjusted t*	-59.0548	0.0000
Exports (Model 2a)		
Unadjusted t	-71.3149	
Adjusted t*	-76.8496	0.0000
Imports (Model 3a)		
Unadjusted t	-11.1458	
Adjusted t*	-9.3150	0.0000
Exports (Model 3b)		
Unadjusted t	-21.1893	
Adjusted t*	-19.1276	0.0000
Imports (Model 4a)		
Unadjusted t	-7.0556	
Adjusted t*	-6.8331	0.0000
Exports (Model 4b)		
Unadjusted t	-10.9853	
Adjusted t*	-10.4654	0.0000
FDI		
Unadjusted t	-53.1264	
Adjusted t*	-56.4578	0.0000
IVA		
Unadjusted t	-14.9617	
Adjusted t*	-14.0692	0.0000

Source: Authors

Table 2 The Fisher-type test for the unbalanced data

Fisher-type test	Statistic	p-value
LPI		
Inverse chi-squared(76) P	191.7282	0.0000
Inverse normal	-6.1776	0.0000
Inverse logit t(194) L*	-7.200	0.0000
Modified inv. Chi-squared Pm	9.3868	0.0000

Notes: As all the p-values equal 0, the series are stationary, which means that panel regression (fixed-effect or random-effect) could be conducted.

Source: Authors

variable, the model is fixed-effect (p-value < 0.05); with Exports as the dependent variable, the model is random-effect (p-value > 0.05). In the case of Model 3, with Imports as the dependent variable, the model is random-effect (p-value > 0.05), whereas with Exports as the dependent variable, the model is fixed-effect (p-value < 0.05). The last Model 4, with Imports as the dependent variable, the model is random-effect (p-value > 0.05), whereas with Exports as the dependent variable, the model is fixed-effect (p-value < 0.05). The theoretical models are presented in Table 3.

RESULTS AND DISCUSSION

Based on the selected methodology, it was possible to identify the influence of the degree of logistics performance on the four specific sectors. First, the export results are presented, according to the previously defined models. Table 2 shows the statistical significance of the LPI in all the selected industries, whereas in Models 1 and 2, the LPI is significant at the 0.05 level. Regarding the magnitude of the coefficient, it was found that logistics performance made the greatest contribution to stimulating exports in Model 1 and Model 4 (see Table 4).

The results show that logistics is an essential factor for export promotion. However, some R^2 are relatively low; still, a decision was made to interpret these models as, according to W. Jianlong, S. H. Jaaman and H. B. Samsudin (2015), the ability of R^2 to interpret information was not supported by the empirical research. Logistics performance is of the utmost importance in food and beverage exports. This evidence is consistent with the previous research in the importance of transport efficiency and logistics activities for perishable goods with a limited shelf life and sensitive transport times and conditions (Djankov *et al*, 2010; Hummels & Schaur, 2013; Illahi & Mir, 2021), including demand for a short supply chain in the food industry (Paciarotti & Torregiani, 2021). These products, especially the export of foods, require high-quality logistics support and timely delivery. The efficiency of administrative and customs authorities, an appropriate infrastructure for efficient

Table 3 The research models

Industry	Definition
Food products, beverages and tobacco	Model 1a: $Import_{it} = \alpha + \beta_1 LPI1_{it} + \beta_2 FDI_{2it} + \beta_3 IVA_{3it} + u_{it} + \epsilon_i$, Model 1b: $Export_{it} = \alpha + \beta_4 LPI4_{it} + \beta_5 FDI_{5it} + \beta_6 IVA_{6it} + u_{it} + \epsilon_i$, where: α- the intercept $\beta_1, \beta_2, \ldots, \beta_6$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t* ϵ_i - the random error term
Animal and vegetable oils	Model 2a: $Import_{it} = \alpha + \beta_7 LPI_{7it} + \beta_8 FDI_{8it} + \beta_9 IVA_{9it} + u_{it}$, where: α - the intercept for the entity *i* $\beta_7, \beta_8, \beta_9$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t* Model 2b: $Export_{it} = \alpha + \beta_{10} LPI_{10it} + \beta_{11} FDI_{11it} + \beta_{12} IVA_{12it} + u_{it} + \epsilon_i$, where: α - the intercept $\beta 10, \beta 11, \beta 12$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t* ϵ_i - the random error term
Machinery and equipment	Model 3a: $Import_{it} = \alpha + \beta_{13} LPI_{13it} + \beta_{14} FDI_{14it} + \beta_{15} IVA_{15it} + u_{it} + \epsilon_i$, where: α - the intercept $\beta 13, \beta 14, \beta 15$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t* ϵ_i - the random error term Model 3b: $Export_{it} = \alpha + \beta_{16} LPI_{16it} + \beta_{17} FDI_{17it} + \beta_{18} IVA_{18it} + u_{it}$, where: α - the intercept for the entity *i* $\beta_{16}, \beta_{17}, \beta_{18}$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t*
Manufactured articles	Model 4a: $Import_{it} = \alpha + \beta_{19} LPI_{19it} + \beta_{20} FDI_{20it} + \beta_{21} IVA_{21it} + u_{it} + \epsilon_i$, where: α - the intercept $\beta_{19}, \beta_{20}, \beta_{21}$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity i at the time *t* ϵ_i - the random error term Model 4b: $Export_{it} = \alpha + \beta_{22} LPI_{22it} + \beta_{23} FDI_{23it} + \beta_{24} IVA_{24it} + u_{it}$, where: α- the intercept for the entity *i* $\beta_{22}, \beta_{23}, \beta_{24}$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t*

Source: Authors

transport, and a high-quality and competent logistics providers are indispensable.

Also, industrial products record the highest value of the coefficient. The complexity of modern industrial production, trade within the GVC, and increased requirements in the field of delivery impose a special requirement on logistics when the promotion of the processing industry exports are concerned. The results are built on earlier evidence on the impact of logistics on the product processing stage (Zaninović *et al*, 2021), which favors a higher logistics

requirement for intermediate goods. They are more sensitive to trade than capital or consumption goods. The complexity of production requires constant connections between different phases in different locations, which places logistics at the center of these activities. In this sense, logistics can be considered a production factor, especially within Industry 4.0 requirements (Angreani *et al*, 2020).

Model 2 and Model 3, which include the products classified as animal and vegetable oils and machinery and equipment also show dependence on logistics performance. These products often have special requirements in terms of logistics activities, where meeting specific conditions in this field enables trade of any kind (Sarabi & Darestani, 2021; Dempster *et al*, 2022). The smaller volume and frequency of the export of these products in the observed countries can justify the lower coefficients. In this way, in addition to delivery time, the frequency of trade can be highlighted as an important determinant in terms of the logistics intensity of certain industries and product groups. If exports are more frequent and complex, and with higher delivery requirements, logistics will make a stronger contribution.

Table 2 shows the effects logistics has on imports for the selected industries. At first, it can be seen that, in all the observed models, the LPI coefficient shows higher values for imports than for exports, which is indicative of a more significant contribution of logistics to imports than to exports (see Table 5).

The greater impact of logistics on the imports side is opposite to the previous evidence, which highlights that logistics performance is more important for exporting than for importing countries (Martí, Puertas & García, 2014; Gani, 2017; Töngür *et al*, 2020). On the other hand, P. A. Zaninović and F. Ž. Bugarčić (2023) conclude that the logistics performance of the partner country plays a more critical role than the logistics performance of the reporting country. This

Table 4 The Impact of the LPI on the industry-level exports

Variables	Food products, beverages and tobacco (Model 1a)	Animal and vegetable oils (Model 2a)	Machinery and equipment (Model 3a)	Manufactured articles (Model 4a)
LPI	5.13**	3.47**	1.59*	5.57*
FDI	-5.22**	-3221486**	-7.01	-6.17**
IVA	200141.1***		4844.129	
R^2	48.88	13.5	18.62	21.15
Number of obs.	225	225	193	225

Source: Authors

Table 5 The impact of the LPI on the industry-level imports

Variables	Food products, beverages and tobacco (Model 1b)	Animal and vegetable oils (Model 2b)	Machinery and equipment (Model 3b)	Manufactured articles (Model 4b)
LPI	9.23**	3.59*	1.26*	8.10*
FDI	-3.09	-5933987***	-7.44	-7.04
IVA	253597.6***		-31463.21	
R^2	62.25	15.89	27.09	16.46
Number of obs.	225	225	193	225

Source: Authors

circumstance can be attributed to the perspective of the investigation, since previous studies have focused on the total volume of countries' exports and imports. At the same time, the results are presented for separate industries. Another problem is the selection of the countries to which the OECD countries import to a great extent, especially production components and industrial products of lower processing stages. The presented results, again with the most substantial impact of the LPI in Model 1 and Model 4, reveal the high importance of logistics in efficient imports, in which regard it can be stated that a national logistics system is necessary for imports, as well as for the domestic industry and the national economy to function efficiently, particularly in the context of modern global supply chains (GSC).

CONCLUSION

The growing importance of logistics and its impact on global trade flows has created an imperative for further research in this area. The previous research presented in the Literature Review emphasizes the role of logistics performance as a significant factor in trade facilitation, especially in modern GSCs. This evidence imposes the need for acquiring further knowledge of its contribution to specific industries. Assuming the different needs of individual industries and product groups depending on their specific requirements for logistics operations and preconditions within the logistics system, the paper fills the gap in the literature pertaining to a lack of evidence on the impact of these activities on exports and imports at this level. The effects of these operations have not been observed at the individual industry level yet.

Based on the presented results, obtained through the panel analysis with secondary data, it is possible to draw lessons regarding the importance of logistics performance in individual industries for the first time. The evidence presented in this paper indicates the vital role of logistics across all the observed product groups, especially in the processing industry, manufactured goods, and the food and beverage sector. This underscores the importance of timeliness and efficiency of delivery, which are critical in the modern business environment, particularly in international trade. Additionally, a greater significance of logistics performance for imports was identified, highlighting the need for more efficient procurement due to the increased fragmentation of production activities at the international level, which provides an answer to the research question.

This paper highlights several implications. Theoretically, the importance of logistics advantages in the industries with a strong impact of the LPI on exports and imports is confirmed. Thus, the improvement of the logistics system and related activities contributes to the promotion of international trade, particularly in the industries with special requirements related to delivery, either due to the limited shelf life of products or due to requirements for the inputs needed for further manufacturing processes. Such a concept in the field of theory emphasizes the importance of the activities of international logistics when trade promotion, both exports and imports, is concerned.

With regard to practical implications, they can be grouped in two ways: those intended for the creators of the economic or trade policy, and for those directly concerning the operations of companies in certain industries. The knowledge of the impact of logistics performance in the observed industries and their differences provides policymakers with a basis for formulating a strategy within the logistics system to facilitate trade in those industries in which the economy has a strategic interest. In this way, the direct targeting of the strategy for improving logistics performance will contribute most to the economies relying on the exports or imports of products from the processing industry, including food, beverages, and tobacco. As for individual companies, the assessment of their success in a specific sector must depend on the logistics environment, due to the particular requirements of specific industries in the logistics field. The companies that operate in the identified logistics-intensive industries will undoubtedly tend to improve those operations and base their business on more robust support from the components of this system.

The limitations of this research study reflect in data availability, given that the LPI limits the number of the years of observation. On the other hand, due to the availability of the data on exports and imports at the industry level, it was impossible to use the latest data for 2023. Also, due to the limited data at the country level, the study had to opt for a sample including the OECD countries. Future research can undoubtedly overcome these shortcomings through a more extended period of observation and a larger number of countries, simultaneously identifying differences arising from the development level. Using FDI as the control variable in the analysis can lead to endogeneity issues, since it can indirectly affect trade through investments in infrastructure and integration into global supply chains. Therefore, there is a risk of reverse causality and omitted variables. However, considering that this is the first paper to analyze the impact of logistics performance at the industry level, future research could include more variables, use different methods, including more industries at the 2-digit level, and use different classifications and product groups for analysis.

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LOGISTIKA KAO POKRETAČ MEĐUNARODNE TRGOVINE: ANALIZA NA NIVOU INDUSTRIJE

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Rast globalne trgovine tokom poslednjih nekoliko decenija, kao i sve aktivnije uključivanje zemalja u trgovinske tokove i lance snabdevanja, istakli su logistiku kao jedan od najvažnijih faktora koji olakšavaju međunarodnu trgovinu. Međutim, postavlja se pitanje ko ima najviše koristi od logistike. Cilj rada je da ispita doprinos logistike unapređenju izvoza i uvoza u odabranim industrijama u OECD zemljama, kao i da proceni i uporedi značaj logističkih performansi u zavisnosti od specifičnosti sektora i karakteristika proizvoda. Za procenu uticaja logistike na međunarodnu trgovinu korišćeno je panel regresiono modeliranje. Rezultati ukazuju na značajan uticaj logistike na međunarodnu trgovinu na nivou industrije. Takođe, nalazi pokazuju poseban doprinos logistike podsticanju trgovine industrijskim proizvodima i robom osetljivom na vreme isporuke, pri čemu je njen uticaj izraženiji na uvoz. Ovi rezultati naglašavaju poseban značaj logističkog sistema i povezanih operacija u identifikovanim sektorima.

Ključne reči: logističke performanse, trgovina na nivou industrije, grupa proizvoda, izvoz, uvoz

JEL Classification: F13, F14, L52, L9