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## The Study of the Logistics Development Effectiveness in the Eurasian Economic Union Countries and Measures to Improve it

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**Abstract:**

*Economic growth and competitiveness of the country depend on the logistics efficiency. The article assesses the efficiency and level of logistics development based on the international ratings analysis in the Eurasian Economic Union countries (EAEU) which have close trade relations with Kazakhstan.*

*The indices of efficiency and effectiveness of logistics development, as well as their components are being analyzed. Differences and trends in their changes are revealed based on the comparative analysis of the logistics efficiency index of the countries with the highest indicators and the countries of the EAEU.*

*The problems of logistics development are considered and the directions for increasing the efficiency of logistics development in the EAEU countries, including Kazakhstan, are justified. Recommendations are proposed to improve the efficiency of logistics.*

**Keywords:** *Logistics, Performance measurement, the Eurasian Economic Union countries, international rankings, assessment of logistics development, international trade, Kazakhstan.*

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## 1. Introduction

The efficiency of logistics plays an important role in economic growth and in increasing country's competitiveness. According to Mustra (2011), logistics is one of the most important factors for increasing national competitiveness. Therefore, the policy of any state is aimed at developing logistics as a key sector of the economy. Inefficient logistics increases costs and reduces the likelihood of global integration. This puts a tremendous burden on developing countries trying to compete at the global level (Arvis *et al.*, 2007; 2016). Evaluation of the logistics effectiveness requires the use of various indicators that characterize its effectiveness and productivity. Macroeconomic criteria and indices characterizing the effectiveness of logistics or its individual components have different methodological approaches in measuring indicators.

Among them, the logistic models of the leading countries according to the rating of the LPI index (Logistics Performance Index) deserve the greatest interest as a basis for research at the present stage. This indicator allows us to determine the main differences between the analyzed countries (Martí, 2014).

Places in the countries ranking are constantly changing based on the measures taken by the country to improve logistics performance indicators. Therefore, the studies conducted before this research, require constant refinement and identification of their changes in order to improve logistics. It is important to determine the level of logistics development and barriers in a particular country or economic region; how to improve their components; what mechanisms or instruments are beneficial to use, and how to do so that the government and companies can participate in improving logistics activities.

The purpose of the study is to assess the efficiency of logistics development in the EAEU countries and to compare it with those of the countries with the highest logistics efficiency indicators; issuing recommendations on improving the efficiency of logistics in the EAEU countries. The object of the study is represented by the countries with the highest indicators of logistics effectiveness and efficiency and the EAEU countries. The choice of the EAEU countries is related to the fact that they have traditional trade relations with Kazakhstan, and they are also transit countries for Kazakhstan's export products.

## 2. Literature review

In the work of Chow *et al.* (1994) based on the study of logistics sources, methods for evaluating and representing the efficiency of logistics are given. However, these methods were used to assess the logistics performance of the company and were not used to assess the logistics performance of the country due to the complexity of measurement and data collection.

Daugherty *et al.* (1996) proved that the higher the level of integration in companies, the higher the efficiency of logistics and its economic performance. A positive relationship between logistics and trends has been established to increase the level of integration between companies. Inefficient logistics leads to increased costs, financial resources, extended delivery time; negatively affects the foreign trade of the country and companies, and also leads to its decrease (Hausman *et al.*, 2005; Albekov *et al.*, 2017; Bondarenko *et al.*, 2017).

As the importance of logistics is growing steadily, there is a growing need to evaluate its components and compare the achievements of different countries (David, 2006). Forslund (2007) described modern methods of logistics management and revealed the existence of the relationship between the logistics performance management and the expected results of logistics for customers. Countries with low logistics efficiency indicators face high costs not only because of transportation costs, but also because of unreliable supplies and incorrect measurement (Gogoneata, 2008; Sambracos and Ramfou, 2014). The results of the study using econometric methods and the logistics efficiency index calculated by the World Bank showed that there is a strong relationship between the service sector development and the results of logistics in the country. The more developed the service sector the higher the level of logistics development. Keebler and Plank (2009), through a survey of US companies established a positive relationship between the company's efficiency and logistics efficiency, and concluded that it was necessary to continuously measure logistics indicators to improve the company's operations.

The Global Competitiveness Index (GCI) is a general indicator of the global competitiveness rating. The rating of the World Competitiveness (IMD World Competitiveness Yearbook 2010), proposed by the International Institute of Lausanne in 2010 is also popular. In 2010 the World Forum proposed an index of global involvement in international trade (The Global Enabling Trade Index, ETI). The ETI index measures the policies of states and the effectiveness of their institutions in the field of international trade and the development of economic cooperation. The index is measured once every two years. However, the non-tariff measures are not included in the ETI index due to the lack of global data.

The logistics market development in the country is directly influenced by the conditions of doing business. Therefore, assessing the business environment in accordance with Doing Business, which is annually prepared by World Bank (WB) is important. The report of 2017 (Doing Business 2017) includes 190 countries and covers 10 indicators (WB, Doing Business, 2017). To fully assess the logistics development in countries the leading macroeconomic international rating DHL Global Connectedness Index is also used. Using the DHL index data on 10 different types of international trade and economic relations, including such categories as trade, capital, information and population for the period from 2011 to 2016 is studied (DHL Report, 2016).

The increasing role of logistics and the strengthening of logistics integration with other business areas lead to the emergence of new indices for the logistics evaluation. Thus, in 2007 the first world-wide specialized rating Logistics Performance Index (LPI) was made assessing the development level and of country's logistics efficiency (LPI, World Bank, 2007).

The World Bank's LPI evaluation methodology is based on the results of predominantly international (transnational) logistics companies' surveys. At the same time, there is no questioning of logistics services' consumers. Also, the peculiarities of individual countries are not considered, for example, the availability of access to the sea, the area of the territory, etc. In addition, in many countries there is no national statistics on logistics. For example, in some countries there is no data on the logistics infrastructure (Belarus), there is no information on the structure of logistics services (Belarus, Kazakhstan). Therefore, it is not possible to reliably estimate their quality.

Table 1 presents the abovenamed ratings and shows the percentage of logistics reflected in each of them (Dolgov, 2010). Thus, it is possible to draw a very important conclusion not only about the growing role of logistics, but also about the interrelationship of various macroeconomic processes with the logistics development level.

**Table 1.** Logistic indicators weight in the context of international rating comparisons

Name of rating (report)	Subindexes / groups	Number of private indicators			Specific weight of logistic indicators, %
		Objective	Subjective	Total	
Global Competitiveness, GGI	3/12	34	76	110	14.5
IMD World Competitiveness Report	4/20	131	115	246	6.5
The Global Enabling Trade Report, ETI	4/9	11	34	45	55.5
Doing business, DB	10	7	31	38	23.7
Logistics Performance Index, LPI	6	0	41	41	97.6

*Source:* Dolgov, 2010.

In 2010 the Emerging Market Logistics Index - EMLI proposed by Transport Intelligence Institute (Great Britain) appeared in emerging economies. The study is conducted annually starting 2011 (Agility, 2016). This indicator reflects the degree

of the logistics market attractiveness for foreign investment. The overall indicator of the index is calculated based on three intermediate indicators: the size and dynamics of market development, market compatibility, market connectivity (connectivity) of transport communications. The total number of indicators is 14, including 6 subjective and 8 objective indicators. The share of logistic indicators in EMLI is 50%. Thus, the above review of existing ratings represents a kind of evolutionary model of increasing interest in logistics. These indices allow us to analyze the efficiency of logistics development in the whole country, identify problems and trends in their change, make a comparative analysis of the foreign countries indicators and give practical recommendations for their improvement.

In our study, the following indices which most characterize the results and efficiency of the logistics: LPI, ETI and EMLI are chosen. Such an analysis allows us to consider not only the evolution of the methodology for rating formation, but also to identify the key features of the index and its compliance with modern business trends.

### **3. Methodological features of the logistics efficiency measuring**

The LPI index (Logistics Performance Index) is so far, the most objective consisting of the six indicators that cover the most important aspects of the logistics environment based on the evaluation of their development. These include 1) "Customs" (efficiency of customs control and border management); 2) "Infrastructure" (the quality of trade and transport infrastructure related to transport, for example, ports, railways, roads, information technology); 3) "International transportation" (the ease of deliveries organization at competitive prices); 4) "Competence and quality of logistics services" (for example, transport operators, customs brokers); 5) "Possibility of cargo tracking and control"; 6) "Timeliness of cargoes delivery terms", (Arvis, *et al.*, 2014).

The score for each of these elements is from 1 to 5 points, where 1 is the lowest and 5 is the highest score (LPI, World Bank, 2007). For LPI analysis we utilized LPI reports from 2007 onwards. The World Bank has published 5 reports for 2007-2016 (Arvis *et al.*, 2007; 2010; 2012; 2014; and 2016), involving more than 160 countries, providing a detailed explanation of logistic indicators in these countries.

The ETI index is determined according to the World Economic Forum methodology by the expert-analytical method on 57 indicators of statistical data of international and national organizations, as well as the results of the global survey (22 indicators or 38%). We used reports on the ETI Index 2014 and 2016 (Report The Global Enabling Trade, 2016). The study of the Global Enabling Trade Index shows the analysis of the four main indicators of the world economies openness for the international trade: access to the internal market, administrative management at the borders, the business climate, transport and communication infrastructure. The

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World Economic Forum reports on the Global Enabling Trade Index for 2014 and 2016 (WEF, The Global Enabling Trade Report 2016) were applied.

Reports on the Emerging Market Logistics Index (EMLI) were used. The WEF 2016 report is a rating of 136 countries around the world in terms of a comprehensive index of national economies openness for international trade (The Enabling Trade Index), which considers four blocks of indicators: access to the internal market, border management, business climate, transport and communication infrastructure. Among the EAEU countries only Russia and Kazakhstan are involved in the EMLI rating. Data from these reports and studies was applied in this paper.

## **4. Results**

### ***4.1. Efficiency and trends analysis in logistics development according to the LPI index***

LPI has become a key tool for explaining the relationship between trade and infrastructure. The LPI helped in identifying the problems and priorities of the reform, strengthened the dialogue between the public and private sectors, promoted the development of trade and transport in different countries (Banco Interamericano de Desarrollo, 2010). LPI's top positioned countries have large distribution platforms and industries specializing in logistics services (Martí and Puertas, 2014). These countries tend to benefit from economies of scale and are at the forefront of major technological innovation. At the other end of the LPI there are low-income countries, often landlocked either geographically isolated or affected by conflict.

According to our analysis, the difference in the overall LPI between the lowest and the highest indicators improves and is within: in 2007 - between 1.21 and 4.19 points, in 2016 - between 1.60 and 4, 23 points. The gap between the countries decreased from 2.98 points in 2007 to 2.63 points in 2016, that is, the improvement occurred at 11.7%.

The first TOP-10 high-income countries strengthened their positions in LPI from 4.06 to 4.13 points (by 1.7%), while the last 10 low-income countries and those demonstrating the worst LPI indicators improved by 3, 7% or from 1.86 to 1.93 points. Thus, a slow process of reducing the gap is taking place. This is due to the economies of scale and geography, through integration with global supply chains and country-driven efforts to improve LPI (Report World Bank LPI, 2017).

According to the LPI index research for 2016, the first 10 places in the world in terms of logistics efficiency put of 160 countries were occupied by European countries (Germany, Luxembourg, Sweden, Netherlands, Belgium, Austria, Great Britain), Asian countries (Singapore, Hong Kong SAR) and USA (International LPI, WB 2016). That is, as in the previous issues of the report, according to the results of the 2016 survey, the top ten best countries are represented mainly by high-income countries.

There is a tendency for a general increase in LPI scores, which can be explained by the reduction of restrictive measures adopted by some countries during the financial crisis. Seven out of the top 10 countries included in the 2005 index had an LPI above four points, whereas in 2016 there were already 17 countries. In 2007 LPI was for 150 countries ranging from 3.92 to 4.19 points, then in 2016 - from 3.99 to 4.23, i.e. increased by 1.3%. As for the 10 lowest ranked countries, their index since 2007 (1.21-2.06) to 2016 (1.6-2.14) demonstrates an increase of 14.4%.

Table 2 represents data of 10 countries with the best LPI and EAEU countries. In both groups the average LPI index is increasing, while in the TOP-10 countries it has increased by 1.7% over the past 10 years. At the same time, by components went up from 0.7% (competence and service in logistics) to 2.5% (improvement of customs procedures). In the EAEU countries the average LPI index increased by 5.7%. The growth of average indicators occurred in infrastructure by 11.5%, more than 7% - in international transportation and competence. More than 3.5% and 4.4%, respectively in the cargo tracking and the observance of delivery terms. The indicator of simplification of customs procedures remained unchanged.

**Table 2.** Dynamics of the change in the average index of the logistics efficiency and its subindex in the TOP-10 and EAEU countries, in points

Years	LPI rank	Customs	Infra-structure	International shipping	Competence and logistics quality	Possibility of cargo tracking	Compliance with delivery deadlines
<b>Average of the 10 best indicators countries</b>							
2007	4,06	3,85	4,12	3,87	4,09	4,09	4,37
2010	4,01	3,89	4,14	3,58	4,05	4,14	4,35
2012	4,01	3,87	4,12	3,78	4,04	4,08	4,23
2014	3,99	3,91	4,16	3,65	4,02	3,96	4,34
2016	4,13	3,95	4,20	3,94	4,12	4,19	4,42
Growth / Decline 2016 to 2007	<b>1,7%</b>	<b>2,5%</b>	<b>1,9%</b>	<b>1,8%</b>	<b>0,7%</b>	<b>2,4%</b>	<b>1,1%</b>
<b>The average value among the countries of the EAEU</b>							
2007	2,28	2,13	2,08	2,25	2,18	2,28	2,75
2010	2,60	2,16	2,29	2,78	2,44	2,56	3,28
2012	2,53	2,31	2,46	2,44	2,48	2,59	2,88
2014	2,57	2,35	2,39	2,67	2,47	2,57	2,91
2016	2,41	2,13	2,32	2,42	2,34	2,36	2,87
Growth / Decline 2016 to 2007	<b>5,7%</b>	<b>0,0%</b>	<b>11,5%</b>	<b>7,5%</b>	<b>7,3%</b>	<b>3,5%</b>	<b>4,4%</b>

Source: <http://lpi.worldbank.org/international/> (1=low to 5=high)

Kazakhstan remains the leader among the EAEU countries according to the main LPI index starting from 2010 through 2016 (Table 3). The second place is occupied by Russia, then follows Belarus. According to the experts' opinion, the similarity of our systems holds the EAEU countries at the bottom of the LPI index. Trade relations within the EAEU are much easier compared to any other country of the world; therefore the main difficulties in these countries are customs clearance issues, as well as weak integration of national logistics systems into the common Eurasian and European systems.

**Table 3.** Places occupied by the EAEU countries by LPI index

Year	Kazakhstan	Russia	Belarus	Armenia	Kyrgyzstan
2007	133	99	74	131	103
2010	62	94	-	111	91
2012	86	95	91	100	130
2014	88	90	99	92	149
2016	77	99	120	141	146

*Source:* <http://lpi.worldbank.org/international/>

Analysis of the LPI index for 2007-2016 raises certain doubts about the study's results reliability due to a sharp jump in the indicators (Table 3). For example, Kazakhstan in 2007 ranked 133rd in the LPI rating, in 2010 it rose to 62nd place, and in 2016 dropped to 77th. Similar situation is in Kyrgyzstan: 2007 - 103 place, 2010 - 91st, 2012. - 149th, 2016 - 146th. While the lack of progress in logistics in Russia also raises doubts - it seems that no work is conducted to improve the logistics efficiency. Over the past 10 years Kazakhstan's performance index has improved by 56 positions (from 133 to 77 places) (Table 4). At the same time, there is a tendency for all indicators to grow - from 15% to 48% for the indicated period. In 2016, there was a decrease in competency and compliance rates by 5.5% compared to 2014.

**Table 4.** Dynamics of the Kazakhstan's Logistics Performance Index changes

Years	LPI rank	LPI Estimation	Place among countries and the index of efficiency					
			Customs	Infra-structure	International shipping	Competence and logistics quality	Possibility of cargo tracking	Compliance with delivery deadlines
2007	133	2,12	139/1,91	137/1,86	129/2,10	50/2,05	116/2,19	120/2,65
2010	62	2,83	79/2,38	57/2,66	29/3,29	73/2,60	85/2,70	86/3,25
2012	86	2,69	73/2,58	79/2,60	92/2,67	74/2,75	70/2,83	132/2,73
2014	88	2,70	121/2,33	106/2,38	100/2,68	83/2,72	81/2,83	69/3,24
2016	77	2,75	86/2,52	65/2,76	82/2,75	92/2,57	71/2,86	92/3,06

Growth times	1,72	1,29	1,31	1,48	1,31	1,25	1,30	1,15
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**Source:** <http://ipi.worldbank.org/international/>

Let us consider the place of the EAEU countries on 6 subindices of LPI in 2014-2016 (Table 5). The level of logistics development in Kazakhstan (77th place in the LPI rating) suggests that the logistics potential of Kazakhstan as a transit country is not used sufficiently. Over the indicated period Kazakhstan has improved its position on such indicators as customs (86th place, growth by 35 positions), quality of the logistics infrastructure (65th place, growth by 41 positions), international transportation (82, growth by 18 positions). The deterioration occurred according to the indicator "quality and competence" (92, falling by 9 positions), "cargo tracking" (71, falling by 10 positions), "timely delivery" (92, drop by 23 positions).

**Table 5. Indicators of the EAEU countries on LPI subindices in 2014-2016.**

LPI subindex	Country by LPI subindex									
	Kazakhstan		Russia		Belarus		Armenia		Kyrgyzstan	
	2014	2016	2014	2016	2014	2016	2014	2016	2014	2016
Customs	121	86	133	141	87	136	75	148	145	156
Quality of the logistics infrastructure	106	65	77	94	86	135	107	122	147	150
International shipping	100	82	102	115	91	92	90	146	127	152
Quality and competence	83	92	80	72	116	125	79	137	151	151
Cargo tracking	81	71	79	90	113	134	114	147	145	115
Timely delivery	69	92	84	87	93	96	92	139	155	126
General rank of LPI	88	77	90	99	99	120	129	141	149	146

**Source:** <http://ipi.worldbank.org/international/>

During the period, Russia, Belarus, Armenia and Kyrgyzstan have deteriorated in their overall rating and subindices. In the EAEU countries, except for Kazakhstan, the following indicators deteriorated: "customs", "quality of logistics infrastructure", "international transportation", "cargo tracking". Quality and competence deteriorated in all countries, except for Russia, where an upswing took place (72, an increase of 8 positions). The indicator "timeliness of deliveries" worsened in all the EAEU countries. If the main indicators of logistics development are evaluated on the LPI index and subindexes in 2016, then Kazakhstan can be considered as the leader among EAEU countries.

#### **4.2. Analysis of the logistical services market development on The Global Enabling Trade Index (ETI)**

According to data for 2014 and 2016 out of 136 countries the highest indices are observed in the following European and Asian countries with high income levels:

Singapore, Netherlands, Hong Kong SAR, Luxembourg, Sweden, Austria, Germany, and Belgium. From the EAEU countries for 2014 and 2016 Armenia (54th and 68th) and Kazakhstan (83rd and 88th) have shown the best results. Further on Russia (105 and 111 places) and Kyrgyzstan (98 and 113) are rated. The rating deteriorated in all the EAEU countries (Table 6).

**Table 6.** The positions of the EAEU countries on ETI subindices and their comparison with changes in other groups of countries for 2014 and 2016

ETI subindices	Indices in points								Change between 2014 and 2016		
	Kazakhstan		Russia		Armenia		Kyrgyzstan		EAEU	Eurasia	Europe and North America
	2014	2016	2014	2016	2014	2016	2014	2016			
1. Access to the domestic market	3,77	3,85	3,32	3,85	5,83	4,42	4,65	3,62	-0,45	-0,22	0,02
2. Access to the foreign market	3,44	2,74	3,14	2,16	4,45	4,50	4,48	3,84	-0,33	-0,40	0,19
3. Efficiency and transparency of the border	4,04	4,15	3,85	3,93	4,70	4,77	4,39	4,40	0,07	0,07	0,06
4. Availability and quality of transport infrastructure	3,43	3,53	3,98	4,14	3,01	2,87	2,19	2,18	0,03	0,01	0,01
5. Accessibility and quality of transport services	4,07	3,98	3,84	3,77	3,89	3,35	3,09	3,13	-0,16	-0,11	-0,03
6. Accessibility and use of ICTs	4,9	5,25	4,88	5,37	3,83	4,31	3,43	3,76	0,41	0,55	0,41
7. Operating environment	4,33	4,49	3,58	3,79	4,57	4,55	3,59	3,89	0,16	0,12	0,07
Position out of 136 countries	83	88	105	111	54	68	98	113			

A comparative analysis of the Eurasian countries, including the countries of the EAEU, shows that this is the region that has least improved the overall state of the ETI, which has led to deterioration in both the market access and transport services. In contrast, the countries of Europe and North America improved the index, except for the "accessibility and quality of transport services" indicator (decrease of 0.03).

There was a worsening of the indicators for all countries, but the lowest decrease is observed in Kazakhstan (14 positions) and Armenia (5 positions). Kazakhstan and Armenia are leading in almost all components of ETI, except for "transparency of borders" (led by Armenia and Kyrgyzstan). Russia is leading by the availability and quality of transport infrastructure and the introduction of information and communication technologies (ICT). This suggests that there is an uneven degree of the EAEU countries involvement in international trade. Harmonization of the conditions for entering the market, the quality of the transport infrastructure and the availability of ICT use are required.

At the same time, ETI's results and other studies prove that a good economic policy does not necessarily lead to good results due to the failure of meeting deadlines or lack of capacity (WEF report, ETI 2016 index). Therefore, the economic policies of these countries in the field of logistics should be synchronized with the logistics objectives and the possibility of these countries. Possible priority areas for the international trade development and economic integration are ensuring market access, improving the quality of transport infrastructure, efficiency and transparency of the border. The programs adopted in Kazakhstan over the past 15 years and the allocated finance for trade development as well as the reduction of trade barriers give the expected results improvement, but the indicators are considerably behind the developing countries. This is due to the low potential for program implementation (low competence, high corruption, etc.) and failure to meet the deadlines for their implementation.

#### ***4.3. Analysis of the logistics services market development by the Emerging Market Logistics Index (EMLI)***

According to data for 2016 out of 45 emerging economies the first places were divided between China, the United Arab Emirates, India, Malaysia, Saudi Arabia, Brazil and Indonesia. Among the EAEU countries Russia ranked 9th by the EMLI index (in 2015 the 7th), Kazakhstan - 18th (in 2015 - the 18th). Belarus is not included in the EMLI rating. Analysis of EMLI subindexes for 2015-2016 years showed the following (Table 7). Russia has a high index of scope and dynamics of market development, but not sufficiently developed transport communications and communication, weak market compatibility. In Kazakhstan the internal transport infrastructure and communications are not reasonably developed, the market scope is small and underdeveloped, but the market is of high compatibility (developed services sector, investment opportunities, market availability and security).

***Table 7. Level of the logistics market attractiveness in developing countries by the EMLI index in 2015-2016.***

Countries	Subindices /position of the country in 2016	General index of EMLI / place of the country	Change in 2016
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	Scope and dynamics of market development	Market compatibility	Market connectivity (coherence)	2016	2015	
China	9,48/1	6,79/6	6,75/3	7,91/1	8,09/1	-0,022
UAE	5,58/17	8,61/1	7,73/1	7,00/2	6,63/6	+0,37
India	9,32/2	4,80/21	4,95/22	6,76/3	6,66/5	+0,10
Russia	6,83/9	5,58/16	5,72/10	6,16/9	6,57/7	-0,41
Kazakhstan	4,60/25	6,94/4	5,14/19	5,28/18	5,08/18	+0,2
Ukraine	3,48/29	3,99/37	4,84/26	4,09/34	4,46/30	-0,37

*Source: Transport Intelligence. <http://www.ti-insight.com/>*

Thus, the logistics market in Kazakhstan is developing most dynamically and progressively. Although the logistics market of Russia is the most attractive among the analyzed countries, however, it should be mentioned that its attractiveness is reduced, due to the deterioration of its state by 2 positions.

## 5. Discussion and problem solving

At the moment, the countries of Western Europe and the developed Asian regions occupy a confident leadership in the level of logistics development, which is confirmed by the findings of early research (Arvis *et al.*, 2007). But the logistic systems of the developed countries that are leading in the LPI rating are not an ideal model for copying, since each of them, firstly, is not devoid of shortcomings, and secondly, it is oriented to the specifics of a particular region. The development of foreign logistics and its investment was carried out in different countries according to individual scenarios, adjusted for the specific features of the national economic policy, geographical, demographic features, urbanization and the level of development of the overall infrastructure of specific regions. A common feature of logistics systems in developed European, American and Asian markets is the orientation toward modernization through the introduction of modern information technologies and the expansion of the range of IT services. The latest data shows a significant increase in logistics efficiency compared to previous years, as well as a narrowing of the gap between countries with high LPI and countries with the lowest LPI. Our findings confirm early studies (Arvis *et al.*, 2007) that countries with low scores increase their overall score faster than those in high-scoring countries.

At the same time, the LPI index of the EAEU countries is growing faster compared to other European and Asian countries that have high ratings. The results of the last 10 years show good prospects for the growth of infrastructure quality (11.5%) against the TOP-10 of the best countries (1.9%); simplicity in the organization of international goods supplies (7.5% and 2.72%, respectively); competence and quality of logistics services, (7.3% and 0.7%, respectively). Practically, the efficiency of the customs control process in the EAEU countries remains unchanged, and there is little improvement in the ability to track and control cargo, the

timeliness of goods delivery to the destination within the planned or expected delivery time.

Previous studies of LPI have shown a tendency to improve indicators, while in countries with low results, the overall score increases faster than in countries with high rates. The authors of the report (Arvis *et al.*, 2007) attribute this to the fact that in low-income countries, improvements in indicators are achieved by improving the infrastructure and improving the efficiency of basic border control procedures. In EAEU countries, a significant increase in the Kazakhstan rating in terms of the logistics performance level occurred for all components of the LPI. Nevertheless, over the past 3 years, there has been a decline in the quality and competence of logistics services, cargo tracking and the timeliness of deliveries.

Among the EAEU countries, the transit countries such as Kazakhstan, Russia and Belarus - have the growth potential of LPI due to international trade between Europe and China. To do this, it is necessary to reduce transportation tariffs, fees and charges in ports, train personnel or improve the skills of specialists, introduce modern innovative technologies in logistics, information technology to track and reduce delivery times. Despite a certain subjectivity of the logistics efficiency study, it is possible to single out a number of basic problems of logistics development among the members EAEU countries. They include lack of investment in infrastructure development, lack of market for 3PL services, lack of a 4PL system integrator, low level of staff qualification, imperfection of customs and other types of control at the external border, lack of uniform legal regulation, lack of statistical recording at the national level of logistics development indicators, weak integration into the Eurasian logistics system.

Based on the EMLI index analysis, the following conclusion can be drawn: Russia is the most attractive investment market for investments, primarily due to the large scope and dynamics of market development. The most dynamic logistics market development occurs in Kazakhstan and its investment attractiveness as a transit country between Europe and China is high.

Heckman and Nikita (2010) using the LPI and Doing Business show that tariff and non-tariff barriers continue to be a significant barrier to international trade and trade in lower-income countries, and our studies prove that. Low non-tariff barriers lead to deterioration of trading conditions due to worsening of the LPI and ETI subindexes. Despite the comparatively better logistics performance of Kazakhstan and Russia, the international ratings note a little progress in the logistics development in general across the EAEU countries against the backdrop of intensive logistics development in developed countries. The main reasons for the still weak logistics efficiency is in poor logistics infrastructure development, the insufficient attractiveness of the logistics industry for investors, the lack of qualified personnel, the imperfect legislation, complex and bureaucratic conditions for opening and running a business, and the weak competitiveness of national economies. All conditions for logistics

development are created in Kazakhstan, among them are favorable business conditions, the investment attractiveness of the logistics industry is increasing, the logistics market is open to foreign companies, a high degree of integration into the world economy, and the competitiveness of the national economy is growing.

In Russia and Belarus logistics is less developed. The rest of the EAEU countries are developing less efficiently. Therefore, governments of all EAEU countries have to do all efforts in raising the level of logistics industry attractiveness for foreign investors. We should facilitate the implementation of projects for the logistics infrastructure development, personnel training, the improvement of regulatory documents to open and run business, the introduction of modern information and innovative technologies and solutions in the field of logistics, which have long been used in developed countries.

The logistics system of the EAEU countries needs restructuring, further integration with the systems of more developed countries. In addition, it is necessary to raise the level of the regulatory and legal framework governing the industry to resolve the issues of training highly qualified personnel, introducing new technologies, and improving the quality of the services provided. Also it is important to use public-private partnership, as evidenced by the international experience of the advanced countries of the world, leading today in the LPI rating.

Kazakhstan can utilize its transit potential more effectively by creating warehouse hubs and involving foreign transport and logistics companies. The opening of new points will ensure the creation of new jobs, as well as large logistic centers, warehouses, which, in turn, will reduce the import of agricultural products to Kazakhstan. The differentiation of priorities depending on the level of logistics efficiency remains relevant. Even within the EAEU countries there is a significant difference in the development of the logistics components considered. Measures are required to synchronize them, as well as close cooperation between countries on improving the indicators for the entire EAEU region, which is the subject of further research.

## **6. Conclusion**

To improve the logistics performance of the EAEU countries multilateral approaches and different strategies are needed to enhance the components of the indexes considered.

On the basis of the research, the following conclusions can be drawn regarding the development of logistics and the enhancement of its attractiveness in the EAEU countries. This concerns investing in the logistics development and improving their components: the quality of the infrastructure and the competence of specialists, cargo tracking and the timeliness of deliveries, reducing border and trade barriers for passing cargo. Institutional changes will be required to improve the level of

integration and regulation of the industry, accessibility and security of the market as follows:

1. Increasing the logistics efficiency requires:

- Improvement of the regulatory and legal framework, in particular, interstate intermodal transport, the unification of document circulation, the creation of a unified and through tariffication for cargo transportation and information services on the basis of a single document circulation;

- Creation of a system for reliable statistical reporting on logistic indicators, raising the level of personnel training for the logistics industry, restructuring the logistic systems of the EAEU countries and integrating them into the Eurasian logistics system;

- transition to complex logistics servicing for the client - full "outsourcing" of logistics services; development of logistics providers network that provide standard comprehensive services to customers throughout Kazakhstan. Significant expansion of the transport and logistics services complex (including planning, control, management and delivery) with the active use of logistics services outsourcing (3PL technology) in the international market.

2. It is necessary to stimulate the trade development and improve the ETI position of the EAEU countries by expanding the market and integrating with foreign countries.

This will require upgrading the digital and transport infrastructure and communications facilities, improving the overall operating environment. Although these measures are more long-term, more complex and expensive, they create the potential for huge social and economic benefits that far exceed the country's competitiveness.

3. Analysis of the EMLI rating showed that in order to increase the EAEU countries' logistics market attractiveness for foreign investors, it is necessary to improve the internal transport infrastructure and communications, reduce administrative barriers at border crossings, increase the economic efficiency of national economies, increase market openness for foreign logistics companies and investors. In this respect, Kazakhstan and Russia have the best position. The sectoral ministries and departments of the EAEU countries - Armenia, Belarus, Kyrgyzstan - required to work on including these countries in the EMLI rankings.

4. Stimulating the logistics development will lead to the improvement in the DHL GCI rating position. The countries of the EAEU should expand foreign trade relations (especially in Belarus and Kyrgyzstan), pursue a more open economic policy, work towards concluding regional trade agreements, and improve the effectiveness of border services.

Thus, it is necessary to coordinate the state policy for the logistics development in the EAEU countries, the formation of a centralized institution for managing the logistics system.

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