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THE EFFECTIVENESS OF LOGISTICS DEVELOPMENT AND ITS IMPACT ON THE ECONOMIES OF THE COUNTRIES ALONG THE SILK ROAD PASSING THROUGH KAZAKHSTAN

Summary. In modern global conditions, the revival of the economic belt of the Great Silk Road as a whole opens up new significant opportunities for countries along the route to develop the economies of these countries. Nowadays, the main factors for the integration of these countries are logistics, international trade, and tourism. The relevance of the study lies in the very methodological approach of assessing the logistics factors affecting the economy of a number of countries along the economic belt of the Silk Road.

A group of preliminary countries, through which lie main routes of the economic belt of Silk Road, including Kazakhstan, were selected. An analysis was carried out on the efficiency of development of logistics and trade, impact of development of logistics on international trade. Based on the analysis of international indices of logistics efficiency, international trade conditions and regression models, problems and reasons for lagging have been identified that affect the economic development of countries along the Silk Road routes.

Priority initiatives have been identified to overcome restrictions that impede the development of logistics and increase trade capacity in the countries of the Silk Road, in particular the Eurasian Economic Union (EAEU), including Kazakhstan.

1. INTRODUCTION

The «Silk Road Economic Belt» (SREB) initiative is the main direction of the national strategy of China «Belt and Road Initiative». At the same time, all countries that are potential participants of this project want to benefit through transit of cargo and passengers, investment in the construction of infrastructure facilities, increase the volume of external and mutual trade, improve the quality of service, etc. [22].

For the Kazakhstani economy, the transportation of goods through foreign trade potentially holds important economic importance, as the country is the main participant in the Silk Road Economic Belt (SREB), along which most of the international rail and road corridors in the Central Asian region connect Europe and Asia [27].

As experience throughout the world shows, the efficiency of the work of logistics and trade plays an important role in improving the country's economic growth and competitiveness [23]. Therefore, the policy of any state is aimed at the development of logistics as a key sector of the economy.

The purpose of the study is to assess the effectiveness of logistics development, its impact on the economies of countries located along SREB (on the example of Kazakhstan), and development of recommendations for its improvement.

In this context, a study was undertaken to achieve the following objectives: 1) to evaluate the effectiveness of logistics development and identify the factors affecting its development in the groups of selected countries potentially participating in SREB, and 2) to identify the impact of the logistics efficiency index on economic growth and international trade in Kazakhstan.

The objects of the study are groups of countries located along the international corridor of the Silk Road, passing through Kazakhstan. These countries have traditional trade relations with Kazakhstan, and are also transit countries for Kazakhstani export products.

The difference between our and other studies lies in the very methodological approach to a comprehensive assessment of the factors and sources of SREB development. Moreover, the assessment of effectiveness is not for individual countries, but for group of countries in the territories through which SREB passes.

2. LITERATURE REVIEW

China recently announced a new «Belt and Road Initiative» initiative aimed at establishing new ties between Europe and Asia, which bypass more modern transport routes in favour of railway connections [19]. For the first time in its modern history, China is trying to export its development model, relying on massive investments in infrastructure, roads, ports and railways at home and abroad to accelerate industrial development and trade throughout the region under this initiative [6].

The main directions of the development of SREB in the future include the creation of seven economic zones: transport; power; trading; information; scientific and technical; agricultural; and tourism [26, 31].

Economic corridors (transport, logistics, and trade) facilitate an access to markets, stimulate the growth of trade and investment, increase productivity, and contribute to agglomeration effects [11]. The main role in economic corridors will be played by transport, logistics, and international trade, stimulating economic growth [8].

The level of development of logistics affects the development of all sectors of the economy, through productivity, competitiveness, and the ability to attract investment, which is reflected in the level of social and economic development of regions of the country.

Evaluation of the work of logistics requires the use of various indicators that characterize the efficiency and productivity of logistics. Various indicators of measuring the efficiency of logistics [9, 10] provide important measures to logistics service providers. However, these indicators do not allow assessing the efficiency of logistics in the country and the role of the state in its development.

Inefficient logistics leads to increased costs, longer delivery times, and inefficient use of financial resources, which adversely affect the foreign trade of the country and companies, and also contributes to their decline [13].

Helena Forslund [14] described the modern methods of logistics management and showed the relationship between the management of logistics performance and the expected results of the logistics of customers. Countries with low logistics efficiency indicators face high costs, not only because of transportation costs but also because of unreliable supplies and their incorrect measurement [3]. 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 development of the service sector and the results of logistics in the country [17]. The more developed the service sector, the higher the level of logistics development. However, the efficiency of logistics depends on the location and the degree of integration of the country's economy.

According to Mustra [23], logistics is one of the most important elements of national competitiveness. Quality logistics services and infrastructure have a strong impact on facilitating the movement of goods between countries.

International trade and development of the service sector positively affect the efficiency of logistics, and the impact of services is much stronger [3]. Almost 50% of the logistics efficiency in the country is explained by the relative weight of the value added of services in GDP. Therefore, the provision of better and diversified services allows to support the further development of logistics.

The efficiency of logistics [25] has become a decisive factor in the competitiveness of exports of the EU countries for the period 2005-2010. As for the components of the Logistics Performance Index (LPI), due to weak domestic demand in European countries and the search for new international markets in recent years, competence and control have gained more importance.

Using LPI as an explanatory trading variable, Sourdin and Korinek [28] confirm that a significant influence of logistics takes place in the trade, especially where improved infrastructure is primarily needed for middle-income countries and more specifically for exporters.

Meanwhile, administrative improvements are more important for importing countries [21]. Distinctive features of the legislation in each country greatly influence international flows of goods. Hollweg and Wong [15] have built an index of regulatory constraints on logistics for the Association of Southeast Asian countries and discovered that the index and LPI are negatively correlated, that is, countries with fewer legal barriers can get better scores in logistics. Possible limitations or obstacles that the authorities set in the way of trade lead to an increase in time and an increase/decrease in competitiveness.

Inefficient logistics leads to increased costs, longer delivery times, and inefficient use of financial resources, which adversely affect countries and companies [13]. OECD countries [24] estimate that logistics costs range from 2% to 15% of total turnover. In this context, the literature focuses on the so-called trade facilitation measures, which are an attempt to overcome a set of key non-tariff barriers that can impede trade between countries. In developing countries, such measures may not be sufficiently developed, causing an increase in trade costs and impeding the efficient movement of goods across borders owing to infrastructure, complex customs procedures and excessive bureaucracy between public authorities [2].

The results of a study of the relationship between resources and the population economy in the six western provinces of China along the «Silk Road Economic Belt» show [20] that the resource environment in the provinces has a gradual slow growth, but the ecological environment is deteriorating. The level of population development is faster. It is proposed to improve the quality of life through the development of infrastructure and adhere to the coordinated and sustainable development of the resource environment and the demographic economy in accordance with the strategy «Silk Road Economic Belt». This shows that in the regions of China, where the Silk Road passes, the economy is intensively growing, but the burden on the environment is increasing, which must be taken into account when developing the logistics and trade of countries along the SREB.

In this context, it is necessary to study the factors of logistics that affect the development of the economy not for individual countries, but for the groups of countries located along the Silk Road routes.

The «Belt and Road Initiative» project identifies the main three routes of SREB that cover Asia, Europe and Africa [31]: from China through Central Asia, Russia to Europe (to the Baltic Sea); from China through Central Asia, West Asia to the Persian Gulf, the Mediterranean Sea; and from China to Southeast Asia, South Asia, to the Indian Ocean.

Kazakhstan plays a key role in this project. For Kazakhstan, the development of the main transcontinental routes linking Europe and Asia is becoming a top-priority task in realizing the transit potential of Kazakhstan. Several major transcontinental transport routes linking Europe and Asia pass through Kazakhstan: 1) China-Kazakhstan-CA countries (Central Asia), 2) CAR (Central Asian Republics) -Kazakhstan-Russia-EU (European Union), 3) China-Kazakhstan-Russia-Belarus-EU, 4) India-Iran-Kazakhstan-Russia-EU, and 5) CAR-Kazakhstan-Russia.

According to statistics, for 2017, the volume of foreign trade turnover between China and countries located along the SREB amounted to 1 trillion 163 billion US dollars with an increase of almost 17.8%. At the same time, the share of the allocated countries in the total volume of trade between China and these countries amounted to 65% (750 billion dollars / 1163 billion dollars).

Thus, the analysis of factors influencing the development of the economies of the countries along the Silk Road allows to analyse the efficiency of logistics development in the whole country, identify problems and trends in their change, make a comparative analysis of the indicators of foreign countries and give practical recommendations for their improvement.

3. METHODOLOGY

Economic indicators for the countries located along the Silk Road are of great interest for SREB. A group of these countries, include more than 15 countries, are directly interested in the revival of the Great Silk Road. In particular, our objects of research can include large countries of regional level (China, Russia, Turkey, and Iran); countries of Central Asia (Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan); the countries of Transcaucasia (Azerbaijan, Georgia, and Armenia); and European CIS countries (Commonwealth of Independent States) (Ukraine, Belarus, and Moldova).

The paper compares the effectiveness of logistics development and the conditions for conducting international trade. The presented data were taken from the reports of the World Bank and other international organizations for the period of 2007-2016.

To assess the effectiveness of logistics development in the world practice, the following are used:
1. Logistics Performance Index LPI (1), determined by the World Bank methodology.
   The LPI index is nowadays the most reliable and consists of 6 indicators that determine the level of development of the transport and logistics complex of the country: 1) efficiency of customs control and border management; 2) infrastructure (quality of trade and transport infrastructure related to transport), 3) the system of international transportation (ease of organization of deliveries at competitive prices); 4) competence and quality of logistics services; 5) the ability to track and control cargo; and 6) timeliness of delivery terms. The score for each of these elements is from 1 to 5 points, where 1 is the lowest and 5 is the highest score [18].
2. The ETI (The Global Enabling Trade Index) index is determined by the World Economic Forum methodology by the expert-analytical method on 57 indicators of statistical data of international and national organizations, as well as on the results of the global survey (22 indicators or 38%). The study of the Global Enabling Trade Index examines four key indicators of the openness of the economies of the world for international trade: access to the internal market, administrative management at the borders, the business climate, and transport and communication infrastructure. We used the World Economic Forum reports of the Global Enabling Trade Index for 2014 and 2016 [29].
3. The Emerging Market Logistics Index (EMLI) is the degree of openness of national economies for international trade (The Enabling Trade Index). We used the WEF 2016 report, which represents a rating of 136 countries of the world on the Integrated Index of Openness of National Economies for International Trade (The Enabling Trade Index), which takes into account four blocks of indicators: access to the internal market, administrative management at the borders, business climate, and transport and communication infrastructure. Among the EAEU countries, only Russia and Kazakhstan participate in the EMLI rating. The data from these reports and studies were used.
4. The development of the logistics market in the country is directly influenced by the conditions of doing business. In the rating of favorable conditions for doing business, consisting of 10 indicators, the International Trade Indicator was used [7]. The study of «Doing Business» estimates the time and financial costs for organizing and ensuring the export and import of goods, that is, the time and cost of processing documents and time and cost of border and customs control, both exports and imports.

4. RESULTS

4.1. LPI analysis of countries located along the SREB

Nowadays, the countries of Western Europe and the developed Asian regions have a strong leadership in the level of logistics development [4], 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, first, is not devoid of shortcomings, and second, 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 national economic policy, geographical and 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 towards modernization through the introduction of modern information technologies and the expansion of the range of IT services.

All of the above should positively affect the factors affecting the logistics efficiency index, which is supposed to allow the main routes of the Silk Road to raise the overall position in the World Bank rating.

To occupy its niche in the world logistics market, it is necessary to improve the competitiveness of the main routes passing through the countries of the Silk Road and increase the main international logistics ratings, which will improve investment attractiveness and increase investment in the development of the logistics infrastructure. Table 1 shows the average value of the level of logistics development (LPI index) in groups of countries where the main SREB routes pass.

Table 1

Level of logistics development (LPI index) in groups of countries participating (including potentially) in the route of economic belt Silk Road, 2016, in points

| Country	Assessment LPI	Rank LPI	Customs	Infrastructure	International shipping	Competence in logistics	Trackability of goods	Compliance with delivery deadlines
European countries	3,50	34	3,27	3,40	3,43	3,51	3,52	3,84
Large regional countries	3,06	64	2,71	3,09	3,06	3,09	3,03	3,40
European CIS countries	2,58	97,6	2,25	2,32	2,61	2,45	2,60	3,24
Countries of Transcaucasia	2,34	132	2,26	2,37	2,38	2,14	2,20	2,66
Countries of Central Asia	2,32	126,8	2,11	2,33	2,34	2,22	2,23	2,65
Average in the world	2,88	-	2,71	2,75	2,87	2,82	2,86	3,27

Source: Compiled according to the World Bank, 2016.

Table 1 shows that in terms of the development of logistics (by index and subindex LPI) for 2016, the leaders among these groups of countries are European countries (3.5 points) and large regional countries (3.06); the worst indicators of logistics development are in countries of Central Asia (2,32) and the countries of Transcaucasia (2,34). Above the average world LPI indicators are seen in the EU countries and large regional countries, and the remaining groups of countries have indicators below the world average.

Figure 1 shows the ratings and values of the Logistics Performance Index (LPI) of the Silk Road countries or potentially related to the Silk Road. The best average figures are from European countries, and from China, India, and Saudi Arabia, which are higher than the world ones. CIS countries and the Caucasus are lagging behind the average world LPI. (Fig. 1).

It should be noted that Kazakhstan is the leader among the CIS countries in terms of the main index of the LPI index in 2012, 2014, and in 2016, being ahead of all CIS countries. The level of logistics development in Kazakhstan (77th place in the LPI rating) indicates that the logistics potential of the republic, as a transit country, is not used enough.

Despite a certain subjectivity of research on the effectiveness of logistics, it is possible to single out a number of basic problems of logistics development in countries that are part of the Eurasian Economic Union. Among them there is a shortage of investments in infrastructure development, lack of market for 3PL services, lack of a 4PL level 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, and weak integration into the Eurasian logistics system.
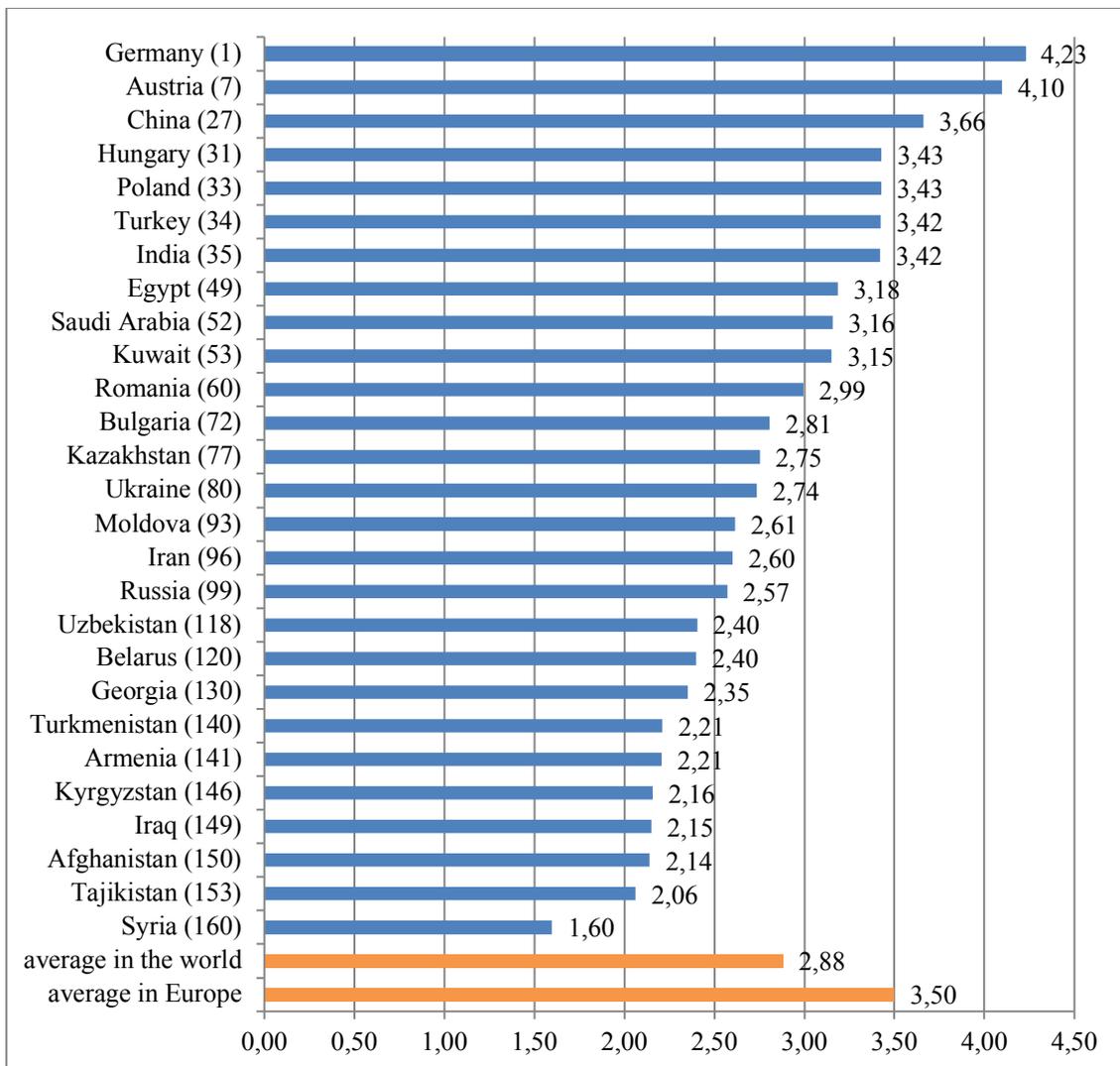
Source: Based on the World Bank's Logistics Performance Index

Fig. 1. Rating and evaluation of logistics performance (LPI) in the countries of the Silk Road

4.2. Assessment of the logistics services market by the EMLI index

Analysis of the indicated EMLI subindexes for 2015-2016 shows the following (Table 2). Of the large countries, China (1st place), India (3rd place), Russia (9th place) and Turkey (11th place) have a high indicator of the size and dynamics of market development, whereas in Russia, there are insufficiently developed transport communications and communications and weak market compatibility. In Kazakhstan and Ukraine, the internal transport infrastructure and communications, a small and underdeveloped market, and low market compatibility are not sufficiently developed. The rest of the countries (the objects of our research) are missing in the EMLI rating.

According to data for 2016, Russia ranked 9th out of 45 countries with developing economies according to the EMLI index (the 7th in 2015), Kazakhstan ranked 18th (18th in 2015), and Ukraine ranked 34th (the 38 in 2015). The first places in this ranking are occupied by China, the United Arab Emirates, India, Malaysia, Saudi Arabia, Brazil and Indonesia. Among the countries of the Customs Union in the EMLI rating are only Russia and Kazakhstan. Russia in 2013-2015 occupied the 7th place and 9th place in 2016, having decreased by 2 positions. In 2013, Kazakhstan occupied the 18th place; in 2014, 16th place; and in 2015-2016, the 18th place (Table 2).

Table 2

Dynamics of changes in the level of attractiveness of the logistics market
in developing countries by the EMLI index in 2013-2016

A country	General index / Country location by EMLI index			
	2013	2014	2015	2016
Kazakhstan	4,99/18	5,07/16	5,08/18	5,28/18
Russia	6,44/7	6,45/7	6,57/7	6,16/9
Ukraine	4,90/27	4,71/27	4,46/30	4,09/34
China	8,3/1	8,11/1	8,09/1	7,91/1
Turkey	5,99/10	6,0/10	6,1/10	5,95/11
India	6,94/4	6,75/5	6,66/3	6,76/3

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

Thus, the most attractive logistics markets among the analysed countries are China and India. The logistics market of Turkey and Russia is attractive, but it should be said that its attractiveness has decreased, owing to the deterioration of the position by 1 and 2 positions, respectively.

In general, the following conclusion could be drawn: Turkey and Russia have an attractive logistics market for investments, primarily owing to the high size and dynamics of market development. The logistics market in Kazakhstan is developing most dynamically and its attractiveness is increasing.

4.3. Analysis of the development of the logistics services market by the ETI index

According to data for 2014 and 2016, of 136 countries, the best indices of the involvement of countries in international trade (ETI) are in the following European and Asian countries that have high levels of income: Singapore, Netherlands, Hong Kong SAR, Luxembourg, Sweden, Austria, Germany, and Belgium. The best results on the ETI index were shown by the countries of the Transcaucasus and the European countries of the CIS (table 3).

There was a worsening of the indicators for all countries except Georgia (5 points increase) and China (2 points increase). The smallest decline is observed in China (by 2 points), Iran (by 2 points), Moldova (by 3 points), and Kazakhstan (by 5 points). The greatest deterioration of indicators is seen in Kyrgyzstan (by 15) and Armenia (by 14).

Kazakhstan and Armenia among the EAEU countries are leading in almost all ETI components, with the exception of «Transparency of borders» (led by Armenia and Kyrgyzstan). Russia is leading in terms of the availability and quality of transport infrastructure and introduction of information and communication technologies (ICT).

This indicates that in countries there is an uneven degree of involvement of the EAEU countries 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, the results of ETI and other studies prove that a good economic policy does not necessarily lead to good results - due to non-compliance with the deadlines for their implementation or lack of capacity [30]. Therefore, the economic policies of these countries in the field of logistics should be synchronized with the objectives of logistics and the possibility of these countries.

Possible priority areas for the development of international trade and economic integration are ensuring market access, improving the quality of transport infrastructure, efficiency, and transparency of the border.

The programs and finances in Kazakhstan adopted in the last 15 years for the development of trade and the reduction of trade barriers give the expected improvement in results, but the indicators are far behind the developing countries.

Table 3

Positions of the group of countries along the SREB, by the ETI index and their changes

	2014 year		2016 year		Change in rating
	Rating	Indices in points (1-7 points)	Rank	Indices in points (1-7 points)	
Large countries of regional level					
Turkey	48	4,54	59	4,52	Down by 11
China	63	4,36	61	4,49	Up by 2
Russia	105	3,72	111	3,79	Down by 6
Iran	130	3,07	132	3,16	Down by 2
The countries of Central Asia (CA)					
Kazakhstan	83	4,03	88	4,05	Down by 5
Kyrgyzstan	98	3,86	113	3,76	Down by 15
Tajikistan	-	-	114	3,74	
Countries of Transcaucasia					
Georgia	46	4,59	41	4,80	Up by 5
Armenia	54	4,5	68	4,32	Down by 14
Azerbaijan	66	4,28	71	4,30	Down by 5
European CIS countries					
Moldova	76	4,14	79	4,20	Down by 3
Ukraine	84	4,02	95	3,97	Down by 11

Source: The World Economic Forum. The Global Enabling Trade Index. https://www.weforum.org

This is due to the low potential for program implementation (low competence, high corruption, etc.) and failure to meet deadlines.

4.4. Analysis of the «Doing Business» index

Analyzing data on the degree of favorable conditions for doing business in accordance with the reports of «Doing Business 2016» (Table 4), it was noted that all CA countries have improved in terms of doing business trade.

As can be seen from table 4, large regional countries ($ 3413.3 billion) are leading in terms of volume of national economies and then Central Asian countries ($ 47.3 billion) and European countries of the CIS ($ 45.3 billion). The efficiency of doing business in European countries of the CIS and Transcaucasia is higher than in large regional countries, and the lowest indicators are seen in Central Asian countries.

The greatest time is spent on border and customs control when exporting products of the Central Asian country (Kazakhstan 133 hours, Uzbekistan 112 hours, Tajikistan 75 hours). The least time is spent on this procedure by the European countries of the CIS (Moldova 3 hours and Belarus 5 hours).

The highest cost is for border and customs control when exporting products in large regional countries (Russia $ 765 and Iran $ 565) and in Central Asian countries (Kazakhstan $ 574), whereas in European countries of the CIS, these costs are on average lower than $ 100.

Documents processing time is the highest, on average 97.25 hours, in Central Asian countries (174 hours in Uzbekistan, 128 hours in Kazakhstan), and the lowest, on average 12.33 hours, in Transcaucasian countries (in Armenia and Georgia - 2 hours).

The cost of paperwork for export is the highest in Central Asian countries ($ 271.75), and in large regional countries, this cost is the lowest ($ 101.75).

This suggests that in large countries of the regional level and Central Asian countries, business conditions are worse than in other studied groups of countries in terms of the cost of border and customs control, and the time of paperwork.

Analysis of trade indicators in the import direction shows that the cost and time for processing documents, as well as border and customs control is lower in the European countries of the CIS and Transcaucasia. The highest are in large regional countries and Central Asian countries.

Hence, the following conclusion could be drawn: major countries of the regional level and the countries of Central Asia need to implement reforms to reduce the time and cost of processing documents and border and customs controls in both directions to achieve the level of the OECD countries. To obtain a better effect, it is necessary to coordinate actions with neighbouring countries on measures aimed at improving indicators.

Countries in all regions are implementing reforms aimed at improving the business environment, but Europe and Central Asia remain the region with the largest number of countries that have implemented at least one reform, and 96% of countries in the region have implemented at least one regulatory reform [32].

In the EAEU countries, access to the power supply system connection is difficult; there are difficulties in obtaining construction permits, a complicated procedure for obtaining loan. However, liquidation procedure of companies is simplified, there are no difficulties with contract execution, and it is easy enough to register property.

Analysing the data on the degree of favourable conditions for doing business in accordance with the «Doing Business 2016» reports (Table 4), it can be noted that all countries have improved the business environment.

Kazakhstan, among the EAEU countries, has significantly improved its rating, which bypassed Russia by 21 positions, due to the fact that business conditions have improved significantly. In Kazakhstan, you have to spend a short time on paying taxes, which cannot be said about Belarus. The simplicity of protecting the rights of investors is the advantage of Kazakhstan; this procedure is considerably complicated in Belarus and Russia. Moreover, in Belarus and Kazakhstan, in comparison with Russia, the procedure for opening a business is simplified.

4.5. Analysis of the impact of LPI on international trade (on the example of Kazakhstan)

Effective logistics ensures the simplification of the international trade procedure, thereby ensuring the growth of international trade [16].

Despite the low efficiency of trade between the Silk Road countries and China, they improved their trade relations during 1990-2013. The results show that many of China's trade partners on the Silk Road have not yet realized all the potential benefits from China's economic growth, but this gap may be limited by various institutional, logistical, transport, and trade barriers that need to be overcome [5].

The paper [3] presents the World Bank logistics performance indicators and their impact on some key macroeconomic factors. Econometric analysis shows that all macroeconomic variables examined (the share of exports of goods and services in GDP, the share of imports of goods and services in

GDP, the share of trade in goods in GDP, the share of value added by industry in GDP, the share of value added services in GDP, GNI per capita of the population in US dollars and GDP growth) have a significant impact on the country's logistical indicators.

Table 4

Indicators of the Index of doing business in the export-import direction for groups of countries potentially participating in the economic belt of the Silk Road, 2016

Countries (rank)	Export				Import				GDP, bln. USD
	time for border and customs control (hours)	Cost of border and customs control (USD)	Time for registration of documents (hours)	Cost of registration of documents (USD)	Time for border and customs control (hours)	Cost of border and customs control (USD)	Time of registration of documents (hours)	Cost of registration of documents (USD)	
Large countries of regional level									
Iran (170)	101	565	152	143	141	660	270	197	386,1
China (96)	26	522	21	85	92	777	66	171	11383,0
Russia (140)	96	765	25	92	96	1125	43	153	1132,7
Turkey (70)	16	376	5	87	41	655	11	142	751,2
average	**59,75**	**557**	**50,75**	**101,75**	**92,5**	**804,25**	**97,5**	**165,75**	**3413,3**
The countries of Central Asia (CA)									
Kazakhstan (119)	133	574	128	320	2	0	6	0	116,2
Kyrgyzstan (79)	20	445	21	145	37	512	36	200	5,3
Tajikistan (144)	75	313	66	330	108	223	126	260	6,0
Uzbekistan (165)	112	278	174	292	111	278	174	292	61,6
average	**85**	**402,5**	**97,25**	**271,75**	**64,5**	**253,25**	**85,5**	**188**	**47,3**
Countries of Transcaucasia									
Azerbaijan (83)	29	214	33	300	30	423	38	200	35,1
Armenia (48)	39	100	2	150	41	100	2	100	9,9
Georgia (54)	14	383	2	35	15	396	2	189	13,5
average	**27,33**	**232,33**	**12,33**	**161,67**	**28,67**	**306,33**	**14,00**	**163,00**	**19,5**
European CIS countries									
Belarus (30)	5	108	4	140	1	0	4	0	45,9
Moldova (34)	3	76	48	44	4	83	2	41	6,2
Ukraine (115)	26	75	96	292	72	100	168	212	83,6
average	**11,33**	**86,33**	**49,33**	**158,67**	**25,67**	**61,00**	**58,00**	**84,33**	**45,2**
Middle East and North Africa	**64**	**460**	**77**	**261**	**121**	**555**	**101**	**305**	
Europe and Central Asia	**28**	**195**	**27**	**111**	**26**	**202**	**26**	**91**	
OECD	**12**	**150**	**3**	**36**	**9**	**115**	**4**	**26**	

Although international trade and the development of the service sector have a positive effect on logistics, the impact of services is much stronger. Almost 50% of the logistics efficiency in the country is explained by the relative weight of the value added of services in GDP. Therefore, the provision of better and diversified services allows to support further development of logistics.

The efficiency of logistics [25] has become a decisive factor in the competitiveness of exports. The importance of the Logistics Performance Index (LPI) and its logistics components for EU exports for the period 2005-2010 was analysed with the help of gravity equations, as characteristic indirect variables of trade facilitation.

In the work by Marti et al [21], the influence of LPI and each of its components on trade in developing countries with a maritime boundary was studied using a gravitational model. In addition, the research also aims to identify possible logistics developments in these countries, which are grouped into five regions (Africa, South America, the Far East, the Middle East, and Eastern Europe) by comparing LPI data.

The difference between our studies was that we assessed the impact of LPI on GDP, exports and imports, supplemented with new studies on the impact of individual LPI components on GDP, exports and imports. As part of this study, LPI component impact assessment on GDP, exports and imports of Kazakhstan was undertaken using 2007-2016 data. The reason is because building a gravitational model of the influence of LPI on international trade for groups of countries will require time-consuming research with a variety of variables.

Influence of LPI on macroeconomic parameters of Kazakhstan trade.

Results for single-factor linear regressions with LPI as endogenous variable

$LPI = \alpha + \beta X + \varepsilon$, are presented in the table 5.

As can be seen from Table 5, for all macroeconomic variables there are interrelations between the efficiency of logistics and the variables under consideration, where all the regression coefficients are statistically significant.

The coefficient of determination measures the proportion of variance of the dependent variable (LPI) provided by this regression equation. A higher coefficient indicates a stronger dependence on the independent variable. In our case, GDP (53.8%) has a good link with the LPI index. The coefficients of determination of 41.3% and 29.5% indicate that there is a positive relationship between LPI and exports and imports. Moreover, exports have an impact on the development of logistics stronger than imports.

Table 5

The impact of LPI on the macroeconomic parameters of Kazakhstan's trade

Exogenous variable, X	Constant coefficient (α) (T- statistics)	Variable coefficient (β) (T- statistics)	Coefficient of determination, %
Export of goods and services, mln. dollars	2,35* (4,45)	0,01* (0,45)	41,3
Import of goods and services, mln. dollars	2,72* (3,34)	0,012*	29,5
GDP, mln. dollars	2,23* (4,19)	0,003* (1,11)	53,8
*- 5% level of significance			

Source: calculated by the authors

Table 6 shows the impact of LPI components on macroeconomic indicators.

A stronger negative impact on exports is rendered by «Customs» (-483.9) and «Compliance with delivery deadlines» (-17.7). Export is positively affected by «Competence in logistics» (467.6) and «Infrastructure» (153.1).

Import is negligibly negatively affected by «Customs» (-3.26) and «Compliance with the delivery deadlines» (-0.07). The «Competence in logistics» (3.95) and «Infrastructure» (0.89) have a small positive impact.

The following components have a negative impact on GDP: "Customs" (-18224.1) and "Compliance with delivery deadlines" (-103.4), whereas "Infrastructure" (609.8) and "Competence in logistics" (1877.5) have a positive impact.

Table 6

Assessment of the impact of LPI components on Kazakhstan's macroeconomic indicators for 2016

	Export		Import		GDP	
	Coefficients	T-statistics	Coefficients	T-statistics	Coefficients	T-statistics
Constant	-381,3	-1,91	-2,24	-2,24	-1438,8	-1,70
Customs, x1	-483,9	-2,98	-3,26	-3,26	-18224,1	-2,64
Infrastructure, x2	153,1	0,97	0,89	0,89	609,8	0,91
International shipping, x3	22,4	0,13	0,25	0,25	-16,0	-0,02
Competence in logistics, x4	467,6	3,52	3,95	3,95	1877,5	3,32
Trackability of goods, x5	2,1	0,03	-0,01	-0,01	8,5	0,03
Compliance with delivery deadlines	-17,7	-0,20	-0,07	-0,07	-103,4	-0,27

Source: calculated by the authors

So, it can be concluded that the efficiency of logistics in Kazakhstan is more influenced by the export of goods, and its components: «Condition and quality of infrastructure», «Competence of specialists», and «Reduction of customs procedures».

5. DISCUSSION

The logistical system of large countries at the regional level and the EAEU countries needs restructuring and further integration with the systems of more developed countries.

A significant increase in the rating of CA countries, including Kazakhstan, in terms of the level of logistics performance is possible only on the basis of an integrated approach and simultaneous development of all major sectors and components of the LPI. To improve the main indicators characterizing the sub-indexes included in the LPI, it is necessary to create a highly efficient transport and logistics system of the country and ensure its integration into the international transport system.

For example, it is expected that by 2030 the volume of transit cargo traffic through Kazakhstan will almost triple and exceed 46 million tons [12]. In this regard, for 2020, Kazakhstan in the LPI rating plans to take a place no lower than the 40th. At the same time, the transport component in GDP should decrease from 8.1% in 2010 to 7.5% by 2020, which means a radical increase in the efficiency of the transport and logistics system and the growth of value added in the economy [12]. The share of logistic services in the total volume of revenues of the transport and logistics complex will increase from 8% to 25% (for comparison, this figure reaches 50% in Europe).

Among the CIS countries, LPI growth potential has transit countries - Kazakhstan, Russia and Belarus - between Europe and China in international trade. To do this, it is necessary to reduce transport tariffs, fees and charges in ports, train personnel in the best European schools or improve the skills of specialists, introduce modern innovative technologies in logistics and information technology to track and shorten delivery times.

A characteristic trend of the world economy is the disappearance of customs borders in connection with the integration of countries into a single economic space, increasing the efficiency of customs operations, as evidenced by the improvement of trade and logistics indicators in Kazakhstan, Russia,

Belarus, Kyrgyzstan and Tajikistan after integration into the EAEU. Reducing barriers in customs is one of the key factors in the development of the economy (improving trade and logistics).

It should be separately noted the tendency to improve the quality of logistics service against the backdrop of growing competition in virtually all groups of countries.

Despite a certain subjectivity of the study of logistics efficiency, it is possible to highlight a number of basic problems of logistics development in the CIS member countries. Among them there is a lack of investments in the development of infrastructure, the need to improve the quality and competence of specialists, to increase the level of international transportation, the observance of delivery times, and the possibility of cargo tracking.

In general, while assessing the general index of «Doing Business», it should be noted that the logistics industry of the European CIS countries is most attractive, as it has low barriers to passing cargo and better conditions for doing business.

Major countries of the regional level and the countries of Central Asia and the Caucasus should undertake profound reforms to reduce barriers to cross-border transport and make this process more transparent.

Reducing transport barriers and costs for customs and border control will lead to improved international trade, which is clearly visible in European countries, where the best conditions for trade are created.

Important is also the use of public-private partnerships, as evidenced by the international experience of the advanced countries of the world, which lead today in the LPI rating. All of them actively support public-private partnership. In this respect, their complex approach in the development of transport services, infrastructure, and efficient logistics is also important.

The most intensive development of logistics is in European countries and major regional countries. The countries of Central Asia and Transcaucasia received less development. All conditions for the development of logistics have been created in these countries: favourable business conditions, 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 is established, and competitiveness of the national economy is increasing.

In particular, Central Asian countries should attract more investments to improve the quality of transport and logistics infrastructure, reduce customs barriers for cargoes, improve the quality of services provided, and reduce logistical costs.

It is necessary to raise the level of the regulatory and legal framework regulating the industry, to resolve the issues of training highly qualified personnel, introducing new technologies, and improving the quality of the services provided.

In general, assessing the general «Doing Business» Index, as well as international trade indicators, it should be noted that trade is most difficult in countries with a low level of income, as well as in emerging markets. According to the terms of trade, the countries of Central Asia and Transcaucasia lag far behind the countries of Europe and the European countries of the CIS.

Measures will also be required to further improve the internal transport infrastructure and communications, reduce administrative barriers at border crossings, and increase market openness for foreign logistics companies and investors.

6. CONCLUSION

Based on the evaluation of logistics indices, the main logistics factors affecting the economies of the countries along the SREB are identified: the state and quality of the transport infrastructure, the underdeveloped market for 3PL services, the competence of specialists, the effectiveness and transparency of the border, the improvement of normative legal regulation, the lack of statistical accounting at the national level indicators of logistics development, weak integration into the Eurasian logistics system, and the state of international trade, in particular the export of goods.

Despite a certain subjectivity of the study of logistics efficiency, it is possible to propose a number of measures to increase the efficiency of logistics in the EAEU member countries. For this it is necessary to form the development of the market of 3PL-services; to organize a system integrator level 4PL by the countries of the EAEU, to raise the level of personnel qualification, to improve customs and other types of control at the external border, to form regulatory and legal regulation, to improve the statistical accounting of the indicators of the development of logistics at the national level, and to develop measures to increase the integration in the Eurasian logistics system.

The globalization of markets requires a new approach to the development of transport and logistics infrastructure - the transition from single solutions to network solutions. That is, it is necessary to create multi-level transport and logistics centres: central, support and regional hubs in the countries of the Silk Road. The central hub unites the entire system into a single whole. Support hubs ensure the passage of cargo between Asia and Europe. The next level of the network consists of a smaller size of numerous terminals in each country and partner countries - other countries of the Silk Road.

Acknowledgments

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