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Logistic system and value chain trade: case of Central Asia

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Annotation: The globalization of the world economy and the internationalization of business open up the possibility for most enterprises to search for more optimal sources of supply for production and marketing of their products. Today, many enterprises have enough resources and opportunities to organize and carry out transportation, not only in the domestic market, but also in the external one, using transit mechanisms. Taking into account global trends, companies are not limited only by the capabilities of the region of presence and national borders, but are constantly looking for new opportunities to cover the planned need for resources and the ability to meet the growing demand in foreign markets. In this regard, the design of global supply chains is inextricably linked with the movement of traffic flows and the implementation of related transport tasks[1].

Key words: globalization, internationalization, global trends, global supply chains, traffic flows

Introduction

Logistics takes on a global scale, provided that the supply chain crosses the borders of one or more states. As part of global supply chains, traffic flows move from supplier companies to the focus company, crossing the boundaries of its home base, and after processing them into a finished product, they are redirected to the final consumer, and, depending on the number of chain links, also cross the borders of one or several states.

As part of the transport support of global supply chains, the leading role is played by the process of studying routing and international traffic flows, which is a progressive and highly efficient way of organizing the transport process and can significantly reduce the time, distance and cost of cargo delivery, as well as ensure the stability of global supply chains with minimal losses[2].

The organization of cargo transportation implies laying the route of movement, standardizing the processes of loading, unloading, transshipment, as well as documentary escort of goods. The process of establishing interaction between the participants of the organized global supply chain is also of high importance[3].

Building a traffic flow diagram within global supply chains includes several interrelated stages: analysis of the performance of various modes of transport, determination of the volume of deliveries and their dynamics, determination of the loading and unloading capabilities of the transport infrastructure, mapping of consignees and key objects of cargo transshipment and loading works; distance analysis of all possible delivery routes; choice of rolling stock and traffic patterns of vehicles.

Rational choice of route is associated with the optimal selection of delivery vehicles. Using the possibilities of various combinations of vehicles makes it possible to compensate for the shortcomings of one mode of transport with the advantages of another. The use of different modes of transport in routing depends on a number of factors: general and specific.

General factors include: the geographical location of production and consumers, determine the volume and direction of traffic flows; dimensions of cargo units, determine the type of vehicle and the frequency of flights; the cycle of production and the size of stocks, set the delivery time for the laid routes. In turn, specific transport factors include:

[1] Vladimirov S. A. On the main directions of development of the world transport system and Logistics // Bulletin of Transport Information - 2016. - No. 1. - P. 13-19.
[2] Nazarenko V. M. International activities to improve transport ensuring foreign economic relations: a textbook for students / Nazarenko V. M. -publishing house M: MGIMO, 2016 - 152 p.
[3] Nikolaeva M.Yu. The role of transport in the logistics chain // Bulletin of young scientists Samara State University of Economics - 2015. - No. 2. - P. 216.

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- geographical location of communication routes and infrastructure facilities;
- working conditions, seasonality of shipments and frequency of flights; throughput of means of communication and infrastructure facilities on the route; technical equipment;
- development of freight forwarding service[4].

The specificity of the transport support of global supply chains is due to the large distances of transportation and the increasingly complex structure of routes. It is also worth noting the influence of individual modes of transport on the process of designing and functioning of global supply chains, which often make significant adjustments in connection with new trends in the development of the international transportation industry.

Literature review

This section analyses relationship between value chain trade and logistics based on results of the research. Nexus amongst logistics, transport infrastructure and trade has been widely studied by colossal number of scientific (Limao and Venables, 2001) and policy (Arvis et al., 2012) research papers. Countries` international trade heavily relies on their transport infrastructure, since advanced transport infrastructure fosters regional and international competitiveness of countries. Furthermore, importance of logistics is crucial for linking together various transport systems and developing international value chains (Bensassi et al., 2015). Therefore, studying the link between transport systems and international trade is highly relevant (Li and Qi, 2016).

Performance in logistics is rapidly being acknowledged as "one of the critical pillars for development" (Arvis et al., 2014). Ineffective logistics increases trading and integration expenses, while efficient logistics helps a nation's economy to be incorporated in global value chains (GVCs) and fosters growth (Bensassi et al., 2015). Physical movement of products has now become extremely important as production continues to divide across geographical areas. Integrating of all international commercial activities in MNEs' GVCs is thus one of the primary problems from the viewpoint of MNEs (Gereffi and Lee, 2012). The logistics networks that link the multiple areas of the value chain are crucial to the successful integration of a GVC's features (Onsel Ekici et al, 2016; Memedovic et al., 2008). Our research results illustrated in tables in 5.6 and 5.13 in line with aforementioned research outcomes. Development of logistics infrastructure in the regions positively effecting on value chain trade of the region. Although having such kind of progress in their logistics structure the region having challenges to be solved.

Analysis and discussions

Taking into account CA as a landlocked region, we should emphasize that its international trade turnover carried through land and air transport systems. In order to deliver their local products into final destination, CA economies have to transit different countries. This leads to increase in transportation costs and period of arrival of the goods. Rail and road transport systems provides fundamental support for international shipment in bulk and in containers, linking central Asian economies with international markets. To date, contribution of rail transport in the transportation service varies from 60 percent in Kazakhstan, up to 80-90 percent in Uzbekistan and Tajikistan (Rastogi and Arvis 2014). After the break up, Central Asian countries inherited from Former Soviet Union, the task of reconstructing and developing infrastructure of existing railroads and highways. Researches prove that transition of transport systems into modern modes is not complete, since the countries are still struggling with high trade costs and low logistics performances (see table-1). CA countries ranked at lowest LPI index compared to other Asian countries, which means the economies have a lot to do in order to provide high participation at GVC.

[4] Larin O. N. Prospects for the integration of transport systems of the Eurasian Economic Union // Problems of National Strategy - 2017. - No. 4. - P. 152-170.

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Table-1
Aggregate LPI ranking and scores CA and other Asian economies 2012–18

	Mean ran	Mean LPI score,	% of highest performer
Kyrgyz Republic	132	2.38	57
Kazakhstan	77	2.77	66.2
Uzbekistan	117	2.5	59.7
Turkmenistan	142	2.34	55.8
China	27	3.6	86.1
Malaysia	35	3.34	79.9
Philippines	64	2.91	69.6

Source: The Logistics Performance Index and Its Indicators World Bank

In the region Kazakhstan and Uzbekistan have the longest rail lines, those rail lines connects the region to Europe and Asia. Table- indicates that Kazakhstan and Uzbekistan lengthened and improved the quality of internal rail lines. The developments on region`s transport infrastructure is highly related to "Belt and Road" initiation. Even though, China`s projects on building East–West corridors aim multiple goals such as finding new markets, securing resource proficiency, economical dominance, project related countries having great advantage from Chinese investments including CA region. For instance, On the basis of Chinese OFDI Kuryk port, and new ferry terminal in Aktau were build and launched in 2016, Borzhakty-Ersay railway line, 14 kilometres-long, constructed to connect Kazakhstan`s railway system to the port[5], additionally Kazakhstan put about 600 km of highways into use between Khorgos and Almaty, Astana and Temirtau in 2017.[6]

Table-2
Length of CA countries` Rail lines (total route-km)

	2010	2011	2012	2013	2014	2015	2016
Kazakhstan	14202	14184	14319	14767.1	14767.1	14767.1	15529.8
Kyrgyz Republic	417	417	417	417	417	424	424
Tajikistan	621	621	621	621	621	597	597
Turkmenistan*	3115	3115	3115	3115	3115	3115	3115
Uzbekistan	4227	4258	4192	4192	4192	4238	4304

Source: Internation Union of Railways (UIC)

China–Central Asia–West Asia– economic corridor constructed as a branch of New Eurasia Land Bridge Economic Corridor. Construction of this economic corridor fostered enhancement of transportation system of CA economies. Besides, it plays crucial role to increase value chain trade between China and CA countries. Most of the freight transits through Khorgos on the border with Kazakhstan heads to Europe, another branch of rail line is intended to link Kashgar western China with Osh in Kyrgyzstan, at the Irkishtam border passing through Uzbekistan, Turkmenistan, Iran, and Turkey to Europe.[7] It can be seen that CA region became land bridge for transporting Chinese products, into Eupean markets.

[5] "Kazakhstan ne gotov k rostu ob"emov konteinernykh perevozok iz Kitaia," *RzhD-Partner.ru*, June 16, 2017, http://www.rzd-partner.ru/logistics/news/kazakhstan-ne-gotov-k-rostu-obemov-konteynernykh-perevozok-iz-kitaya/.

[6] Zhanbolat Mamyshev, "Kazakhstan i Rossiia ispol'zuiut do 5 protsentov ot chisla vzaimnykh aviiareisov," *Atameken Business Channel*, February 14, 2017, http://www.abctv.kz/ru/news/kazahstan-i-rossiya-ispolzuyut-do-5-ot-chisla-vzaimnyh-avia.

[7] Tristan Kenderdine, "Kitai ispytyvaet trudnosti so svoim krupneishim proektom v Tsentral'noi Azii," *INOSMI.RU*, May 5, 2017, http://inosmi.ru/politic/20170505/239290874.html.

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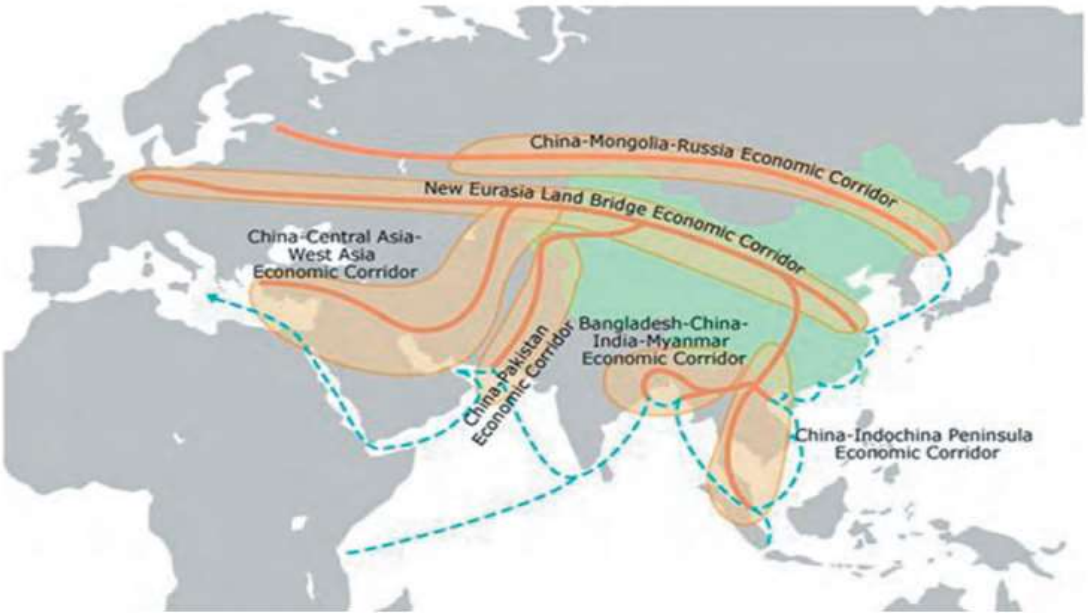

Source: "Chinese Spending Lures Countries to its Belt and Road Initiative," Bloomberg News, May 10, 2017, https://www.bloomberg.com/graphics/2017-china-belt-and-road-initiative/

Moreover having a pivotal role in the transportation services, the region`s logistic system is considered as costly and time consuming. Since most of the traders interviewed about encountering delays of their products due to unprecise transit schedule, sometimes up to two weeks, and paying high transportation payments. Carrying 20 tons of cargo through the region for each 500 km costs 700-1750, which makes up 40-70 percent of the cost. Additionally, Aforementioned issues in the transportation systems disrupts region`s participation on global supply chains by causing low reliability on their services (Arvis 2010). Additionally, it takes 12 hours on average for a truck to cross borders of CA countries, confessedly this number considerably longer than in other regions of Asia. Therefore, this time-consuming border crossing leads to increase transportation costs by 50 percent. Even road freight charges are highly effected by other variable costs including fuel prices, transport utilisation, contribution of fuel costs pretty higher in Central Asia than other Asian regions (30-35percent).

Besides road freight costs, there is another issue, which takes years to be eliminated, on railway transportation system in the region, it is stated that China, Turkey and Iran use standard rail gauge like most European countries (1,435 metres), in contrast most post-soviet countries and Mongolia use former soviet style broader one (1,520 metres). Indisputably, aforementioned issue creates extra costs, since railway freight have to be reloaded another platform on every border crossing[8].

Conclusion

Trade possibilities will not be completely utilized and potential profits through commerce will not be developed, according to Prowse (2006), unless action is taken to expand supply capacity, lower transportation costs, enable cross-border mobility of goods, link producers to markets, and so on. If CA countries put their hands on the desk to develop performance of their logistic system, that would not only enhance their trade turnover, but would also discover region`s untapped potential on international trade.

References

1. Larin O. N. Prospects for the integration of transport systems of the Eurasian Economic Union // Problems of National Strategy - 2017. - No. 4. - P. 152-170.
2. John Kemp, "China Develops Continent-Spanning Railroad to Europe," *Reuters*, April 8, 2016, http://www.reuters.com/article/us-china-railwaykemp-idUSKCN0X41U7

[8] John Kemp, "China Develops Continent-Spanning Railroad to Europe," *Reuters*, April 8, 2016, http://www.reuters.com/article/us-china-railwaykemp-idUSKCN0X41U7

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3. Tristan Kenderdine, “Kitai ispytyvaet trudnosti so svoim krupneishim proektom v Tsentral’noi Azii,” *INOSMI.RU*, May 5, 2017, http://inosmi.ru/politic/20170505/239290874.html.
4. Zhanbolat Mamyshev, “Kazakhstan i Rossiia ispol’zuiut do 5 protsentov ot chisla vzaimnykh aviiareisov,” *Atameken Business Channel*, February 14, 2017, http://www.abctv.kz/ru/news/kazahstan-i-rossiya-ispolzuyut-do-5-ot-chisla-vzaimnyh-avia.
5. Nikolaeva M.Yu. The role of transport in the logistics chain // Bulletin of young scientists Samara State University of Economics - 2015. - No. 2. - P. 216.
6. Vladimirov S. A. On the main directions of development of the world transport system and Logistics // Bulletin of Transport Information - 2016. - No. 1. - P. 13-19.
7. Nazarenko V. M. International activities to improve transport ensuring foreign economic relations: a textbook for students / Nazarenko V. M. - publishing house M: MGIMO, 2016 - 152 p.
8. Rasulev A. New opportunities on economic development of Uzbekistan /A. Rasulev, S. Voronin, T. Shomurodov // Часопис економічних реформ.– 2022.– No 1(45).– С. 30 –38
9. Sadullayevna, K. L., & Rashidovna, Q. G. (2021). Analysis of Relationship Between Trade Costs and Uzbekistans Bilateral Trade: Theories and Concepts. International Journal on Economics, Finance and Sustainable Development, 3(3), 132-140.
10. Shomurodov Tokhir Boymurod ugli, Kuziyeva Gulnoza Rashidovna “A STUDY ON THE REGIONAL LEVEL OF ECONOMIC GROWTH AND THE PRINCIPLES OF ITS CHANGE” Asian Journal of Research in Business Economics and Management ISSN: 2249-7307 Vol. 12, Issue 4, April 2022 SJIF 2022 = 8.529 A peer reviewed journal
11. SHOMURODOV, T., & HONGEN, Y. (2020). A Gravity model study on trade cost and foreign trade nexus: case of Uzbekistan and its selected partners. ECLSS Online 2020c.
12. UGLI, S. T. B., LATOFAT, K., SADULLAYEVNA, O. O. U. Q., GULNOZA, Q., & RASHIDOVNA, R. B. S. U. (2021). An empirical analysis on financial development and bilateral trade flow nexus. Journal of Contemporary Issues in Business and Government| Vol, 27(3), 107.
13. Shomurodov Tokhir Boymurod ugli. (2022). METHODOLOGY FOR DESIGNING GLOBAL VALUE CHAINS AT THE LEVEL OF ECONOMIC ENTITIES. Conferencea, 113–116. Retrieved from https://conferencea.org/index.php/conferences/article/view/1066
14. Shomurodov Tokhir Boymurod ugli. (2022). REVIEW OF VALUE CHAIN CONCEPTS. Conferencea, 84–87. Retrieved from https://conferencea.org/index.php/conferences/article/view/1064
15. Shomurodov Tokhir Boymurod ugli. (2022). CENTRAL ASIAN COUNTRIES AND GVC: THREATS AND WAYS TO PROMOTE ECONOMIC SECURITY DURING THE PANDEMIC. Conferencea, 88–91. Retrieved from https://conferencea.org/index.php/conferences/article/view/1065
16. Расулев, Алішер Файзійович. "ECONOMICAL RETROSPECTIVE OF DEVELOPMENT OF VERTICAL SPECIALIZATION THEORY." TIME DESCRIPTION OF ECONOMIC REFORMS 2 (2021): 15-23.
17. Khushnud, Ziyodilloev, Shomurodov Tokhir, and Qingjie Zhou. "Analyzing Characteristics and Trends of Economic Growth in the Sectors of National Economy of Uzbekistan." 4th International Symposium on Business Corporation and Development in South-East and South Asia under B&R Initiative (ISBCD 2019). Atlantis Press, 2020.
18. SHOMURODOV, Tokhir, and Yang HONGEN. "A Gravity model study on trade cost and foreign trade nexus: case of Uzbekistan and its selected partners." ECLSS Online 2020c (2020).