Transcontinental bridges VS continentality: the case of Russia and Canada

A I Lomakina

Institute of Geography Russian Academy of Sciences, Moscow, Russia

E-mail: lomakina.lomakina@ya.ru

Abstract. The article focuses on the role of land bridges as a factor of reduction of continentality, the cases of Russia and Canada are considered. The example of the TransCanada railway, as well as the Transsiberian railway and the Central route of the OBOR, shows that due to relatively cheap tariffs, they will improve the transport and geographical position of inland regions. However, they cannot completely overcome the continentality of these regions and compete on an equal basis with the regions facing the sea or inner waterways accessible for Maritime navigation (the Saint Lawrence and the Great lakes Seaway, Yangtze, the Xi River). The economic effect, similar to that which the coastal regions receive from the benefits of cheap transport routes, is possible in the border Siberian regions because of subsidizing land transportation by the Chinese authorities. At the same time, the development of cross-border transport infrastructure linking adjacent inland regions contributes to the intensification of trade and economic ties between them. Thus, Canada has developed communication between the provinces and the states, and in the future such an intra-continental belt of trade and economic activity may arise in the framework of the Northern course of the OROB.

1. Introduction

The access to sea was always counted as benefit trait of economic and geographical location of countries and regions. In the conditions of globalization this trait EGL didn’t lose its role, and moreover became more actual. Unequal access to the cheapest marine transport routes predetermines unequal compete advantages of the different countries on the world market, and likewise unequal finance economic indicators of producers and exporters in the framework of the one country.

The significance of the seaside position was evaluated in the classical works on geopolitics (K. Ritter,H. J. Mackinder, Haushofer, Friedrich Ratzel, A. Mahan, P. N. Savitsky, A. G. Dugin, etc.), economic geography and economics (W. Petty, A. Smith, L. I. Mechnikov, N. N. Baranskii, I. M. Maergoiz, V. V. Parsisiusti, etc.). Among recent works, it should be noted the study of L. A. Bezrukov, who developed the first economic and geographical concept of continental-oceanic dichotomy. He also proposed a methodology for assessing the impact of the Maritime situation on international and regional development, most detailed considering the problems, which are associated with the continental Russia [1].

The similar investigations are actual for the other countries, includes giant-countries, which are so familiar with the problems of differentiation and inevitable effect of the “friction of space”. This phenomenon is connected with necessity to overcome big distances with relevant time and cost expenditures [2]. The periphery is forms like that, for which is characterized by isolation from the
most developed and well-developed areas of their own country. This creates a common task for the giant countries of regional policy—the rise of the deep and peripheral areas. Therefore, after China took the initiative of the One Belt and One Road Initiative (OBOR), in the Russian political and scientific discourse, this topic has become extremely popular, although the project itself has caused quite controversial assessments. Some researchers linked the transcontinental bridge with the ways and prospects of economic development of Russia and, above all, the rise of the regions of Siberia and the Far East [3, 4]. Others suggested that it was the OBOR that would be able to offset the costs of continentality [5], and some even saw it as an alternative to sea transportation [6]. Third, without denying the possible benefits, assumed that transport projects within the framework of the OBOR will become an infrastructure for China's economic and political dominance in the Eurasian space [7]. Without trying to touch upon all the problems raised by other researchers, in this article we would like to focus on the following issues. Will land bridges be an alternative to marine transportations? What is their capacity in mitigation of continentality deep regions?

2. Results and Discussion

The One Belt and One Road Initiative is a multi-scale project, which works on internal and external strategic interests of the PRC. Domestic interests are connected with the task of development of the Western provinces. The economic backwardness of the internal regions of the country was the result of the economic reforms of the 1980-1990-ies, when all the forces were thrown at the development of coastal areas. "Proximity to the sea" provided the necessary density of foreign trade relations; cheap labor-low production cost, and a special economic regime-a large amounts of foreign investment. As a result, the share of the Western (inland) regions in the total GDP of China in 2000 decreased significantly compared to 1978. To correct this situation, the PRC leadership has prepared a set of measures aimed at the industrial development of the deep provinces, and the development of new transport infrastructure in them, which will contribute to the growth of transport in the Western direction. Initiated by the Chinese authorities, the "flow" of finance from the coastal developed provinces to Xinjiang contributes to the dynamic development of its economy: the region becomes an important energy and resource base of China, development zones and zones of high technologies of state importance are created and successfully functioning in the capital of Xinjiang. A good example of the patronage of the Eastern provinces of the West is "Shanghai automobile company (Xinjiang) "Volkswagen". In 2014, the production of cars reached 10 thousand units, providing the needs of the regions of Central and Western Asia. An interesting example is the "Xinjiang science and technology company Jinfeng", which was founded in Xinjiang, but has gradually become an advanced enterprise on a global scale for the study, development and manufacture of equipment for wind power. It is listed as the 50 largest innovative enterprises in the world. The company's products are sold in Europe, America, Africa and Australia. This economic and technological breakthrough of the province is supported by the development of the transport infrastructure, which connects the Autonomous region with the neighboring States and contributes to the growth of external openness [8, 9].

China's external interests are in some extent a continuation of internal tasks for the development of the Western provinces. In the new paradigm of the country's regional policy, the former periphery becomes a "window to the West", and therefore the main task of the network of transport corridors created outside China is to ensure the widest possible geographical coverage and at the same time reliable sale of goods produced in the West of PRC. It is clear that such a projection of internal tasks on neighboring countries promises certain geopolitical bonuses, but this is not the task of this article.

Another issue actively covered in the domestic publications is the competition between different variants of the silk road and the Transsiberian highway, as well as their ability to compete and create an alternative to marine transport. First of all, we should start with the transport and logistics potential of the Trans Eurasian corridors. Our interest is attracted by two continental bridges—firstly, the Transsiberian highway as part of the Northern silk road, and secondly, the Central passage of the OBOR-connecting the Central regions of China with Kazakhstan, and further through Russia with Western Europe.
Contrary to the existing view about competition between Transsiberian highway and the Central course of the silk road, these transport corridors still have different niches and tasks. The first represents a transcontinental corridor linking the ports of the Pacific coast with the Baltic sea, passes through the territory of one country, offers the highest speeds of traffic, but with a limited amount of transit in conditions of approaching the exhaustion of capacity. The Transsiberian railway acts as the framework of the Northern route of the silk road. Unlike the Transsiberian highway, the Central route of the silk road, though associated with a port Lyanyungan in the Pacific, yet is designed to link the inland areas of China with Central Asia through Kazakhstan's Dostyk and Khorgos, and then Russia and further to Western Europe. Of course, the coastal regions of China, associated with the consumer regions with cheap sea bridges, will not send their goods along the land corridor. This route, though shorter than the Transsiberian highway by one thousand km, is still inferior to it in speed. The length of the Russian section, and hence the Russian gain from transit, depends on the chosen transcontinental route. However, in any case, transit revenues will not play any significant role for the budget of transit territories. And the traffic along the Transeurasian corridors has a limited volume.

Despite the increased interest that transcontinental land bridges attract due to the rapid growth of traffic volumes (the rail flow of containers between China and the EU for 2011-2017 increased from 14 to 150 thousand TEU [10]), the water route through the Suez canal is still the main one for cargo flows between the EU and China. The volume of sea container turnover between the EU and China for the period 2009-2016 was generally stable at the level of 10-13 million TEU per year, in the presence of a growth trend – by 31% for the same period. This means that 98-99% of all relevant cargo transportations are carried by sea container ships. Given the average load capacity of one container ship Post-Suezmax carrying more than 12 thousand TEU of containers, the Central route of the OBOR corresponds to two dozens of such containers. The transit flow of containers across the Transsiberian highway not exceeding 150 TEU, against this background, also looks even more modest. Comparison of economic parameters of sea and railway transport clearly shows the advantage of the first. The cost of shipping one container from Shanghai to Hamburg by sea is 2.5 thousand dollars, by rail 9 thousand dollars, by air-30 thousand dollars [10]. The three-fold gap in the economic efficiency of transport, as well as the limited capacity of rail corridors, does not allow them to be considered as a real alternative to marine transport, and the observed increase in transport is due to the subsidization by the Chinese authorities. These subsidies, aimed at zeroing the tariff on the Chinese section of the route for the delivery of goods from the Western and middle provinces to Western Europe (subsidies do not apply to the movement of goods to the ports of export), have reduced the cost of delivery of a 40-foot container by almost half – to 5.5 thousand dollars. This allowed to attract part of the transit container cargo requiring high-speed transportation, as well as containerized cargo to avoid empty container run. However, studies show that the growth of land container traffic is possible only if the volume of subsidies is maintained and increased.

An important task of land corridors is to reducing transport costs, linking neighboring regions with each other, as well as with sea ports and as a result – with the world markets. This is confirmed by the example of such a giant country as Canada. The using of Transcanadian Railways with relatively cheap tariffs allows to reduce the shortcomings of the internal situation of the provinces of Alberta and Manitoba. However, even after receiving transport links to the Center – Ontario and Quebec, Prairie provinces remain closely linked to the United States, and the infrastructure of the Transcanadian trade and transport corridor is used for the supply of export goods to the ports of export on the Pacific coast [11]. This only confirms that the potential to reduce transport costs, and as a consequence of transport and economic continentality is very limited. This is confirmed by the experience of Russia, in which, despite 100 years of operation of the Transsiberian railway, the "friction of space" and the transport and geographical continentality of the regions of Siberia are extremely high. During the USSR period, the shift of Russia's demographic and economic potential to the innercontinental areas was associated with the solution of the problem of complexity and self-sufficiency of the USSR economy. At the post-USSR stage, with the active integration of the national economy into the world economic system, a high degree of continentality caused a significant reduction in the efficiency of the country's
economy, which was especially pronounced in the innerland Siberian regions. However, despite the need to overcome the giant land distances, it ultracontinental zone of Russia are the main producers and exporters of fuel and raw materials, being able to adapt to the effects of continentality and weaken it.

In the world practice of Intercontinental countries and regions, a whole range of measures has already been developed, mainly aimed at reducing transport costs: reducing the average distance of transport through the development of interregional and cross-border relations; subsidizing transport and subsidizing intra-continental producers; the mainlining of transport. However, only inland waterways suitable for marine navigation may be a radical solution in spreading the benefits of the seaside position inland. Successful examples include Canada: the Saint Lawrence and the Great lakes Seaway. Lawrence and the Great lakes, accessible to ships and offering year-round (or short-term interrupted) navigation, allows ships to penetrate 3 thousand kilometers inland, directly to the industrial center of the North American continent. The total turnover of canadian ports on inland waterways exceeded 135 million tons (30% of the common Canadian turnover), and the volume of US-Canada «lake trade» exceeded 45 million tons (50% of "marine" trade between US and Canada) [12]. China also has an extensive system of navigable rivers and canals (Yangtze, Xinjiang, Huanghe, Grand canal, etc.), which weakens the negative impact of continentality. In Russia, with its cold freezing shores of the Arctic, not available for shipping, in terms of the placement of the main economic and demographic centres in the innerlandareas at higher latitudes, as removed from sea lanes and borders. This means that in Russia the negative consequences of both Northern and continental situation on economic activity are more tangible.

An important issue is the future of the Siberian regions in view of the OBOR. In a number of publications we can see the expectation of growth of the transit function of the Siberian regions. Even now we can say that this expectation is not fully realized. On the one hand, there is an increase in the absolute flow of transit containers both across the Transsiberian railway (see above) and across border crossings in Zabaikalsk and in Nauska (the absolute flow of containers increased by an average of 3 times). On the other hand, the share ratio shows a decrease in the role of Siberian border crossings: if before 2014 almost all transit rail container traffic between the EU and China passed through Zabaikalsk (95-99%), in 2016 its share decreased to 20%. The share of Kazakhstan's Dostyk border crossing, which grew from 1 to 67%, changed the geography of transit rail transport of container cargo, bypassing the Siberian border terminals and bypassing the Transsiberian railway. Thus, Siberia is no longer a major transit route of OBOR, which in turn limits its influence as a driver of economic development of the Siberian regions.

In addition, the modernization impact of the OBOR does not seem to be any significant, because the planned reconstruction of the Transsiberian railway also does not imply any innovative transformation. From high-speed cargo-and-passenger railways Beijing-Moscow, most likely, they have already refused.

Therefore, we can expect an increase in the load of existing railways and at the same time the growth of goods flow from China to the adjacent Siberian regions. This, in turn, can have both a positive and an adverse effect. First of all, the growth of goods flow will increase the link to the Chinese market due to the fact that the goods will be almost with zero transport costs due to subsidies. Thus, the Siberian regions will benefit from a transport and geographical location similar to the coastal regions: goods will be imported to them with low transport costs, only the costs of export will continue to be high. Orientation of Siberian and far Eastern exports to the adjacent continental regions of China and Mongolia would reduce transport costs by reducing the transport shoulder.

Another effect is indirect, connected not with the transport infrastructure in the Russian regions, but with the rapid development of the neighboring territories of China (catching up with the development relative to the coastal regions).

The growth of the domestic market in Xinjiang, Inner Mongolia and Heilongjiang will lead to the expansion of the Siberian regions’s capacity to export not only raw materials, but also industrial goods. Among other things, this will affect food products, which are considered to be high-quality and
environmentally friendly. But successful promotion of Russian products requires not only a competent marketing strategy, sufficient volume and appropriate quality, but also the laws protecting licensed products and identify counterfeit ones.

The intensification of trade flows and the development of cooperation in the adjacent territories will lead to the development of North-South relations. A similar effect is observed in Canada, where despite the presence of Transcanadian Railways, the most dense trade relations of innerland regions are observed through the province-state connections [13].

3. Conclusion
In response to a question of the study on whether the Eurasian land bridges will be able to compete with Maritime routes, it is safe to say that they will not. This is due to both their technical and economic characteristics. Even if the current pass-through tariff is maintained and the flow of TEU containers continues to increase to 0.5 million by 2020, this volume will not exceed 5% of the number of containers transported by sea.

As for the competition between the TRANS-Siberian railway and the Central route of the silk road passing through Kazakhstan, these trade and transport corridors occupy different niches and perform different strategic tasks. The Transsiberian railway in conjunction with the Northern corridor of the OBOR gives access to the provinces of North-East China to Western Europe, and the Central route connects the Western inland provinces with Europe.

Another issue of the study concerned the possibility of land bridges to mitigate the disadvantages of the Intercontinental situation. The example of the TransCanada railway, as well as the Transsiberian railway and the Central route of the OBOR, shows that due to relatively cheap tariffs, they will improve the transport and geographical position of inland regions. However, they cannot completely overcome the continentality of these regions and compete on an equal basis with the regions facing the sea or inner waterways accessible for Maritime navigation (the Saint Lawrence and the Great lakes Seaway, Yangtze, the Xi River). The economic effect, similar to that which the coastal regions receive from the benefits of cheap transport routes, is possible in the border Siberian regions because of subsidizing land transportation by the Chinese authorities. At the same time, the development of cross-border transport infrastructure linking adjacent inland regions contributes to the intensification of trade and economic ties between them. Thus, Canada has developed communication between the provinces and the states, and in the future such an intra-continental belt of trade and economic activity may arise in the framework of the Northern course of the OROB.

References
[1] Bezrukov L A 2008 Continental-Oceanic Dichotomy in the International and Regional Development (Novosibirsk: Geo) p 369
[2] Trejvish A I 2010 “Shrinking” of Space: Interpretations and Models ed S S Artobolevskii and L M Sincerov (Moscow: EHslan)
[3] Stepanov I 2018 The brotherhood of the road ring EHkspert Sibir’. Income accessed online on 28th July 2018 via http://expert.ru/siberia/2018/22/bratstvo-dorozhnogo-koltsa
[4] Blagireva E N 2015 New Silk Road. Improving the competitiveness of Russian regions Vestnik Akademii 4 196-200
[5] Bezrukov L A 2016 The Transsiberian railway and the silk road: global infrastructure and regional development Ehco 7 21-36
[6] Ponomareva N N 2014 The Transsiberian railway as a leading Euro-Asian international transport corridor on territory of Russia Vestnik of Novosibirsk State Pedagogical University 20 (4) 57-65
[7] Dergachev V 2017 Chinese strategic initiative “One Belt-One Road”. Income accessed online on 30th August 2018 via http://dergachev.ru/geop_events/220517-01.html#.W2GXrS1ePVo
[8] Bazhenova E S 2017 Socio-economic development of Xinjiang – the Outpost of the Western regions of the PRC Society and State in China 22 457-70
[9] Frolova Y Y 2014 China’s economic policies in the Xinjiang Uygur Autonomous Region in the context of the interests of Central Asian Countries Problems of the National Strategy 4 65-85

[10] Transport Corridors of the Silk road: the potential growth of traffic through the EEU 2018 (SPb.: CII EABR) p 74

[11] Lomakina A I 2015 Production and export potential of Canadian mining industries in the condition of inner land functioning Geography and Natural Resources 4 171-7

[12] Lomakina A I 2013 Socio-Economic Aspects of Maritime Location of Quebec, Canada Izvestiya Akademy of Science (Geographical Series) 3 14-25

[13] Canadian oil industry in conditions of low prices and landlocked functioning 2017 Canadian Yearbook. Proceedings of the Russian Society and the Study of the Canadians ed A N Komarov Vol 21 (Moscow: ROIK) p 88-98