Activity of Russian Companies of the Agri-Food Sector in Regional Industrial Value-Added Chains

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Received September 24, 2018; Revised March 12, 2019; Published April 15, 2019

Abstract: This article is concerned with the study of the factors, underlying the decision of Russian companies to relocate production units to foreign countries and form global value-added chains (GVACs). It is proposed by the authors to consider the emergence of economic interests in relocation from the standpoint of synthesis of the concept of integration based on the natural advantages and the concept of GVAC. A high potential for the development of cooperation by Russian companies is noted herein, in particular, in the agro-industrial complex, and at the same time, there is a limited interest of Russian business in the integration processes in the EAEU format. The factors that hinder the expansion of Russian business to the partner countries in the EAEU, as well as the risks of deepening the cooperation ties, are singled out.

Keywords: industrial value-added chains, EAEU, industrial integration, cooperation ties.

1. INTRODUCTION

The problem of the prospects for the development of economies of the EAEU member states in the format of their participation in the Eurasian integration project [1] to create four freedoms: the freedom of movement of goods, services, finance, and labor, is one of the most controversial nowadays [2-3]. The EAEU is a young integration project, which has been operating in the customs union environments since 2011, and in the economic union environments – since 2015.

However, the key theme, from the point of view of enhancing macroeconomic stability and implementation of the competitive potential, is the formation of a coherent industrial, transport, energy and agrarian policy, and the deepening of industrial cooperation [4].

In the context of increasing global risks, the deepening of integration and the development of Russia’s cooperation with the EAEU countries are becoming ever more urgent. The EAEU was established to realize more completely the economic potential within the regional economic ties of the former single union state in the creation of the conditions for improving the competitiveness of the participating countries. Currently, Russia is aimed at modernization of the economy based on the technological breakthrough, the diversification, and expansion of the exports to world markets, the integration into global value-added chains along with the

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partners in the EAEU. The obvious advantages of the international fragmentation of production, which are pushing the enterprises of the developed countries to participate in GVACs, carry quite significant risks in themselves. In this regard, it seems relevant to analyze the sources of the emergence of the economic interests of Russian enterprises of the agri-food sector in the formation of and participation in regional value-added chains in the long term.

2. LITERATURE REVIEW

The problem of the prospects for the development of economies of the EAEU member states in the format of their participation in the Eurasian integration project [1] to create four freedoms: the freedom of movement of goods, services, finance, and labor, is one of the most controversial nowadays [2-3]. The EAEU is a young integration project, which has been operating in the customs union environments since 2011, and in the economic union environments – since 2015.

However, the key theme, from the point of view of enhancing macroeconomic stability and implementation of the competitive potential, is the formation of a coherent industrial, transport, energy and agrarian policy, and the deepening of industrial cooperation [4]. According to the calculations presented [5], two-thirds of the cumulative integration effect in the form of GDP growth are potentially due to direct production effects resulting from the expansion of cooperation, technical and technological ties between the subjects of the EAEU, and the formation of intraregional value-added chains [6-7]. Therefore, according to Tkachuk, the coordinated economic policies of the EAEU member countries should be directed to the creation of such structures. Under the value chain is understood the full range of operations for the creation and consumption of a product – from developing ideas to after-sales service.

In the paper [8], the author has distinguished between producer-oriented value chains and buyer-oriented value chains. In later studies of value chains in agribusiness [9], it is stated that retailers and branded marketers are not the only buyers, and international traders and processors play a similar role in the value chains. Buyers in different market segments have different requirements and organize different types of chains. In addition, not all chains have explicit coordinators.

As Gereffi [10] puts it, the type of value chain is determined by various combinations of three factors: the difficulty of transferring information and knowledge, especially with regard to product specifications and the process for making an inter-firm transaction; the extent to which this complexity can be reduced, and information and knowledge can be effectively transferred without making significant investment; the ability of actual and potential suppliers to fulfill customer requirements. Value chain types include a wide range of variations from low levels of explicit coordination and power asymmetry between buyers and suppliers in case of market relations to high levels of explicit coordination and power asymmetry between buyers and suppliers in case of hierarchy, and intermediate chain types of relational, modular and subordinate types.

Humphrey [11] notes that in agribusiness, coordination through market relations is increasingly being replaced by coordination through the direct exchange of information between firms involved in the creation of the final product. The leading coordinating company should be able to provide instructions and monitor their implementation, make key decisions on the structure of manufacturing, inclusion in the chain and exclusion from it of particular suppliers, distribution of specific types of activities between the various participants in the chain. The fulfillment of such functions is connected with the presence of a certain market power in the leading firm. The asymmetry of market power in value chains identifies the links of the profit concentration [12] and, consequently, the concentration of resources for innovation and growth.
Increasing concentration in individual links in the value chain and increasing quality and safety requirements for food, according to Humphrey [11], are the basic trends in value chains in agribusiness.

The participation in GVACs is facilitated by such factors as favorable business climate and the level of economic development. The international organizations define the tariffs and other trade restrictions as the barriers to participation in GVACs. In addition to the tariffs, the WTO and the OECD identify three additional important barriers to participation in value-added chains: the inadequate infrastructure, the limited access to financing and non-compliance with the world standards. The costs associated with the introduction of new standards and the tightening of existing requirements have a significant impact on small firms included in the value chain. Ollinger and Moore [13] show that for small enterprises, this means a decrease in profitability and the need to either leave the industry or switch to other products. Thus, food safety and quality requirements contribute to concentration in the value chains in agribusiness.

Concentration growth is marked in all links of the value chain. Thus, in the paper [14], the concentration in the agrochemical and seed industries of the agro-industrial complex was studied, which according to the author is related to the protection of intellectual property. There are some works [15] which show concentration at the stage of making agricultural products and the stage of their processing, the main reasons for which are achieving the economy of scale, stricter food safety and quality requirements, the need for continuous development and implementation of innovation.

Moreover, the institutional environment, the business environment, the transport infrastructure and the qualification of the employees are the significant constraints. A key role in this is played by transportation costs. Until recently, it was believed that distance was an important factor in the effective functioning of GVACs and the choice of suppliers. Stephenson argues that the distance factor can be overcome by greater efficiency of the transport and logistics system [16]. Preigerman [17] puts that the development of transport infrastructure and technologies, but not the geography of the country as before, determine the opportunities and the trajectory of the socio-economic development of countries.

The benefits of participation in value chains have been studied by many scholars. Thus, the research conducted by the UK companies [18] confirms the influence of participation in GVACs on the increase in productivity: a 10% increase in the external presence in the industry increases by 0.5% the overall factor productivity of the national producer of this industry. The studies of the influence of the integration of the companies in GVACs [19] showed that in the first year after integration in GVACs, the analyzed companies achieved +5% of the productivity advantage and +9% in four years. Such significant differences in productivity growth can be associated with both the modernization of the company with its integration into the value chain and differences in the location of a link in the chain, ceteris paribus. At the same time, the companies that had left the global chains lost 1% of productivity during the first year, and the cumulative loss of performance over four years was a loss of productivity of 8%.

According to Baier & Bergstrand [20], for international fragmentation of production, a significant obstacle is transport, tariff and non-tariff barriers. They showed that a 7.5% reduction in the tariff rates combined with a 5% reduction in the transportation costs contributes to vertical specialization (offshoring) by almost one-third.

Based on the study of German companies making decisions on offshoring, Marin [21] noted the importance of not only the low wages and closeness to Germany but also the importance of a lower level of corruption, better conditions for contracting. A study of more than 16,000 German companies [22] made it possible to identify the following factors (in the descending order) as very significant and important: linguistic and cultural barriers; institutional and administrative barriers; the cost-benefit ratio; distance to production sites; budgetary issues (taxes, etc.); interests of employees; business ethics; uncertainty regarding international
standards; risk of non-compliance with patent law; distance to major markets; the lack of local suppliers that meet the requirements of the company.

According to Heifets [23], the mainstreaming factors influencing the decision of Russian companies to expand into foreign countries are the benefit and convenience of development. Tkachuk [4] justifies the creation of sectoral regional clusters with export potential by the identification of “convergence zones” on the basis of analysis of sectoral priorities of the national economies, which are of interest at least for EAEU, which have competitive advantages in these sectors and correspond to the trends of the world economy. Natural advantages and the available development potential can allow the EAEU agro-industrial sector to compete for the consumer in the world market [24] while maintaining the principle of security [25].

3. MATERIALS AND METHODS

The aim of this paper is to study the possibility of developing cooperative ties between enterprises of the EAEU countries in the agri-food sector from the standpoint of the formation of regional value chains. In the study, the author relies on the concept of value chains in the agri-food business. The author distinguishes the main types of value chains: hierarchy, chains of subordinate, modular relational type and chains with market relations. The trends of their development in the agroindustrial sector detail the growing concentration in the individual links of the value chain and the increasing requirements for the quality and safety of food products, as well as the high significance of the efficiency of transport and logistics. The author wishes to show which types of chains are predominantly formed in the EAEU, who is the initiator of the formation of chains, how much the EAEU countries are involved in value chains and what obstacles exist for the development and deepening of cooperative ties between enterprises of different EAEU countries.

The study is based on relevant empirical data, statistics and publications of the EEC, EDB CIS, and the World Bank for the analysis of which traditional methods and techniques of economic analysis were used in the form of the comparison of absolute, relative and average values, index method, and grouping methods.

The use of mathematical analysis tools for research is difficult due to the lack of statistical information over a long period of time, the inability to level the impact of political factors on the integration processes and the development of cooperative ties, as well as the presence of factors distorting statistical data, such as illegal imports from third countries to the EAEU (for example, illegal imports from China to Kazakhstan in 2017 amounted to more than $6 billion, in 2018 – $4 billion and exceeded legal imports [26]) and in the intra-union trade, the use of various tax evasion schemes by agri-food organizations. In this connection, in the study of the concentration of markets, the author used expert estimates, which in this situation are the most accurate.

4. RESULTS

The agro-industrial complex is one of the most important strategic sectors of the economy of the EAEU countries. Functioning in the EAEU format provides each of the five member states a number of advantages of a general economic nature [27].

4.1. EAEU food safety requirements

There is a unified regulatory and legal framework in the territory of the EAEU.

The main legal instruments that establish mandatory requirements for products and processes of their life cycle are technical regulations [28]. In total, 47 technical regulations of the Union were adopted, most of which have already entered into force, and unified requirements for safety and product quality cover already about 85% of all products traded in
the EAEU market. The requirements of the technical regulations of the EAEU are in many ways wider than those laid down in European standards. They can combine several dozen of such standards or European directives. Technical regulations of the EAEU are applied not only to protect human life and/or health or to protect the environment. Given the degree of risk of harm, they may contain special requirements for products, as well as related processes.

Currently, as shown by the Global Food Security Index [29], calculated by Economist Intelligence Unit, of the three EAEU countries, for which the food safety index was calculated, the highest quality and food safety index (75.2 points and the 25th place) is in Russia [29]. Belarus and Kazakhstan are far behind in terms of quality and safety, as well as in terms of accessibility, availability of resources and efficiency (Fig. 1).

![Fig. 1. Global Food Security Index of Russia, Kazakhstan and Belarus](image)

4.2. Concentration

Russia, being the largest economy of the Union, produces the majority (about 85%) of food products of the EAEU, but the share of Belarus (about 10%) and Kazakhstan (4.27%) is also noticeable, the Republic of Armenia and Kyrgyzstan together produce less than one percent (Table 1).

| Table 1. Share of food production in the EAEU in 2017, % |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Indicator       | Armenia         | Belarus         | Kazakhstan      | Kyrgyzstan      | Russia          | EAEU            |
| Food production, including: | 0.58 | 9.98 | 4.27 | 0.31 | 84.86 | 100 |
| processing and preserving of meat and making of meat products | 0.21 | 10.42 | 2.29 | 0.13 | 86.95 | 100 |
| processing and canning of fish, crustaceans and mollusks | 0.13 | 7.58 | 0.88 | 0.02 | 91.38 | 100 |
| processing and canning of fruits and vegetables | 1.10 | 7.21 | 11.52 | 0.02 | 79.96 | 100 |
| manufacture of vegetable and animal oils and fats | 0.02 | 3.06 | 5.45 | 0.01 | 91.45 | 100 |
| dairy production | 0.55 | 18.83 | 4.02 | 0.43 | 76.17 | 100 |
| making of bakery and flour products | 2.01 | 5.32 | 5.54 | 0.74 | 86.39 | 100 |
| beverages | 2.13 | 6.82 | 6.60 | 0.67 | 83.79 | 100 |

Source: compiled and calculated by the author according to [30].
In the EAEU countries in agriculture, the share of private farms of the population, which are small producers, is traditionally high. In Kyrgyzstan and Armenia, the share of commercial organizations is less than 5%, in Kazakhstan – less than ¼, in the Republic of Belarus in agriculture the share of the public sector in the form of collective farms is very high (about 80%) and the sector of commercial organizations is completely absent (Fig. 2).

![Structure of agricultural production by business types](image)

**Source:** compiled by the author according to [30].

**Fig. 2.** The structure of agricultural production by business types (as a percentage of the total, at current prices), 2017

Taking into account the above, the concentration on the EAEU market is considered in the case study of Russia. The Russian meat market is characterized by a high concentration of production facilities mainly in the European part of Russia; the meat industry is mainly represented by diversified holdings that produce poultry, pork, and beef and build a vertically integrated value chain.

In the meat market, the share of the largest players continues to increase, which together produced 3 million tons of poultry meat, 1.7 million tons of pork and over 100 thousand tons of beef, which is 60% of the total national agricultural production and 46% of the total national meat production in the country. At the same time, more than a quarter of the national production of all kinds of meat and about 37% of poultry accounted for the five largest meat producers [31]. The highest concentration of production facilities and the highest competition is observed in the poultry industry, although, according to experts, compared to Brazil, the United States or Europe, the share of leading players in the Russian poultry market is not high enough being 10-12% [31].

In the pork market, the 20 largest companies account for just over 60% of the total Russian industrial output. According to experts, competition in the pork market will intensify in the coming years due to the implementation of large projects in this area.

The beef market is significantly different from the pork and poultry markets. The largest producer accounts for about 8% of the total national output, and more than 60% of this type of meat is produced by private farms. At the moment, beef cattle are not attractive to investors, even if there is a demand for this type of meat due to the long payback periods over 12 years.

Vertical integration along the value chain from manufacturing to sales is a general development trend in vegetable production, especially greenhouse vegetables. High concentration is noted in other markets of the agro-industrial sector. Thus, in the sugar market, a quarter of sugar beet processing and sugar production accounts for the 10 largest sugar factories in terms of daily output.

High concentration is also observed in those parts of the value chain that are close to the buyer. For the past 15 years, large modern retail chains have steadily increased their share in
the Russian market, gradually crowding out small business and open markets, especially in large cities in the European part of the country. In 2016, retail chains accounted for 27.7% of the total turnover in the sector, in the food category – 33.1%. Currently, large Russian retail chains are beginning to develop value chains and invest in food production and agriculture.

4.3. Transport and logistics of the EAEU

The formation and development of value chains and the fragmentation of production at the level of regional specialization objectively lead to the need for the uninterrupted flow of raw stock, semi-finished products and services through customs territories along the GVACs on the way to the creation of finished products, increasing the requirements for the transport and logistics system.

An important characteristic of the state of development of transport and logistics is the length of the existing communication lines. According to the EEC, at the end of 2017, the total length of the existing EAEU communication lines is 1,712.8 thousand km of public roads (about 2.5% of the world total), 109.7 thousand km of railway tracks (about 7.8% of the world total) and 287.8 thousand km of pipelines. At the same time, the increase in the length of communication lines in 2013-2017 was provided mainly by the increase in the length of the communication lines of the Russian Federation. For example, the increase in the length of roads in Russia in 2013-2017 (111.3 thousand km) exceeded the current length of roads in Kazakhstan (102 thousand km) and Belarus (95.4 thousand km).

A generalized indicator of the effectiveness of the national transport and logistics systems is the logistics performance index (LPI). From 2007 to 2018, all the countries of the EAEU improved the position of their transport and logistics in the International LPI Global Ranking [32-33].

In general, the EAEU transport and logistics are characterized by the low LPI index, which testifies to low competitiveness and insufficient efficiency in comparison with other countries (Fig. 3). The lack of a unified transport and logistics market of the Union as such [34] is the result of the effect of the emerging consolidation of transport and logistics markets in these countries.

Source: compiled by the author based on the World Bank data [33].
Currently, the issue of modernization of transport and logistics is a priority for the development of the EAEU. In Russia, for example, the volume of investment in “transportation and warehousing” and “information and communications” in 2017 amounted to 18.3% and 3.5% of the total investment in the economy, in Kazakhstan – 14.4% and 0.9%, in Belarus – 10% and 3.2%, in Armenia – 12.2% and 3.5%, in Kyrgyzstan – 12.6% and 2.5%, respectively [35].

In general, the business conditions in the EAEU member countries are approximately the same, with the exception of the Kyrgyz Republic. So, according to the World Bank, in the Eastern Europe-Central Asia region (24 countries), in 2018 Russia ranks 4th, being inferior to Georgia, Latvia, Macedonia. Kazakhstan and Belarus are the 5th and the 6th, respectively, Armenia is the 12th and the Kyrgyz Republic is the 21st (Fig. 4).

![Fig. 4. Business conditions in the EAEU member countries and the RF in comparison](image)

Source: [36]

4.4. Investment

Russia and Kazakhstan are the main investors of mutual direct investments in the EAEU ($1,162 and $375 million, respectively), including in transport and logistics. At the end of 2017, Russia accounted for about 75.6% of the exported volume of mutual investments in the EAEU countries. During the period from the 2nd quarter of 2017 to the 2nd quarter of 2018, the volume of mutual investments in the EAEU decreased by $1.2 billion, and the share of Russia increased to 95.34%. Mutual investments of the EAEU countries in the agro-industrial sector remain low. The agri-food sector of the EAEU countries is not interesting for Russian investors. So, mutual (mainly Russian) investments in the agro-industrial sector of Kazakhstan make up 1.5% of the total investments, in the agro-industrial sector of Belarus – 0.8%, while
investments of the EAEU countries in the Russian agro-industrial sector exceed 15% of the total investments (Fig. 5).

Such a result is explained not only by the large volume of the Russian market and its unsaturation but also by the policy of import substitution and support for the agro-industrial sector in Russia. The agri-food sector of Russia is in the second place (15.8%) in terms of the attractiveness for the EAEU investors after the chemical sector (35.1%). The main volume of investments was provided by Kazakhstan companies specializing in crop and dairy production [37].

5. DISCUSSION

As a result of the policy of import substitution and significant governmental support for domestic manufacturers, the Russian food markets are currently saturated with a number of products (for example, poultry, pork). Further production growth of the largest manufacturers is possible only at the expense of exports growth, since the volume of production already exceeds consumption. In addition, the growth of production is constrained by the increase in production cost against the background of higher prices for imported fodder components [31]. Increasing competition, according to experts, will encourage manufacturers to look for ways to reduce costs, including via transferring part of their production facilities to the EAEU countries with cheaper labor and more suitable climatic conditions for agriculture. In addition, for Russian manufacturers already interested in exports development, it may be interesting to place enterprises closer to end users – the countries of Southeast Asia.

The development of vegetable markets, especially greenhouse vegetables using photoculture technology in the winter, is unprofitable for a number of vegetable crops, especially in the central, northwestern and eastern regions of Russia due to high heating and lighting costs for greenhouses. Cultivation of vegetable crops in the EAEU countries with a warmer climate and a greater number of sunny days would be economically justified subject to the development of the EAEU transport and logistics infrastructure. According to Pak [34],
the low efficiency of the infrastructure component of Eurasian integration, including transport, warehousing, customs, management, telecommunications, etc., in the long run can have a no less divisive role in Eurasian integration than the preservation of non-tariff barriers in mutual trade.

In the analysis of the domestic market of the EAEU on the basis of the market research of meat products [38], it was found that veterinary, sanitary and phytosanitary measures are the main obstacles to the access of Belarusian, Kazakh and Kyrgyz exporters to the Russian market.

At the same time, the population of the EAEU countries is quite loyal to the import of goods of Russian origin, especially in Kazakhstan, Tajikistan, and Kyrgyzstan, while the Republic of Belarus is the most interested in foreign investment. In general, more than a third of the population of the EAEU countries supports the policy of rapprochement with Russian business. Russia is also the most attractive country on the part of the EAEU countries for cooperation in the field of science and technology, in joint development and partnership with which about half of the population of Tajikistan, Belarus and Kyrgyzstan are interested [39].

The EDB analysts believe that the deepening of Eurasian integration in the EAEU and the establishment of common markets will gradually change the situation of corporate interaction. In the meantime, the benefits of membership in the EAEU are mainly used by large investors, for which cross-border barriers are less painful and their resources allow them to effectively overcome these barriers. The medium business tends not to go abroad so far [40].

In the opinion of the EDB CIS, the general factors preventing the integration and development of cooperation between the Russian business and the partners in the EAEU is the presence of non-tariff barriers in the mutual trade of the EAEU countries, the excessive administrative and tax burden on business, the low level of financial support for small and medium-sized businesses, the interest rates on loans, as well as underdevelopment of cooperation between large business and small and medium-sized enterprises. For Russian enterprises, the main risks related to the formation of regional value-added chains in the EAEU format are the following: national protectionism, trade wars between the individual member countries, currency conflicts, the macroeconomic instability and the existing system of economic and political relations both within the EAEU and between the individual countries [23].

The value chains within the EAEU format are currently not sufficiently studied. There is a very small amount of studies in this area. In particular, Pobyvayev [41] in his research came to a conclusion that value chains, being a tool for increasing the degree of economic integration of regional economies, would benefit Russian-Belarusian integration, and the most effective way to participate in global value chains at this stage would be to embed small and medium businesses of the two countries into them.

6. CONCLUSION

The use of the EAEU format for the formation of regional value-added chains seems to be economically profitable for Russian business. The agribusiness sector has a high potential for the development of cooperation ties, in a number of which the cooperation is a necessity and a condition for further development. Despite this, Russian business does not currently demonstrate an increased interest in the development of joint projects and cooperation ties, which is hampered by a number of factors.

This study showed that regardless of some criticism of the very possibility of forming value chains in a national territory, they have already been formed. The predominant type of value chains is a hierarchical type (vertically integrated agri-holdings), which is associated with the high cost or impossibility of coordinating the manufacturing, monitoring, and control with a different organization of the production process in conditions of stricter safety requirements
and product quality. However, the author has not revealed widespread value chains with any enterprises of the EAEU countries.

From the position of value chains, the factors hindering the development of cooperative ties and the formation of joint value chains in the agri-food sector of the EAEU are:

- discrepancy between the quality and level of food safety of Belarus, Kazakhstan, Kyrgyzstan and Armenia with the requirements of technical regulations of the EAEU and the Russian Federation, which, if enterprises of these countries are included in the value chains of Russian agricultural holdings, will significantly increase their costs on monitoring and controlling the quality of products and manufacturing processes;
- mainly private farms’ economy in the structure of agricultural production in Armenia, Kyrgyzstan, Kazakhstan – very small commodity producers and an extremely low share of commercial agricultural organizations, which, from the standpoint of the value chain management concept, also causes the growth of costs of agricultural holdings on monitoring and control;
- missing sector of commercial organizations in the structure of agricultural production in Belarus with a high proportion (about 80%) of state organizations (collective farms of the old Soviet type) with an inefficient management system;
- insufficient efficiency of the existing transport and logistics of the EAEU, which could ensure timely delivery of perishable products from the place of manufacturing to the processing sites or end users.

ACKNOWLEDGEMENTS

The publication has been prepared with the support of the “RUDN University Program 5-100” in the frame of the project “Improvement of marketing tools to support and expand the import of consumer goods in the real sector of the Russian economy”.

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