

The policy of reasonable import substitution on the agro-industrial complex example

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Abstract

As a result of Russia imposing sanctions on the import of food products, the volume of production by domestic agricultural organizations has vastly increased. Significant growth is observed in the crop production, which grew by 42% from 2014 to 2016. Production of livestock products increased by 17% from 2014 to 2016. In 2016 Russia came out on top in terms of wheat exports.

Despite the positive trends, it is necessary to focus on the concept of reasonable import substitution, which will not damage either consumers or the Russian companies' competitiveness in the world market. It is also necessary to establish a process of interaction between domestic enterprises and universities in order to solve business problems and develop innovations. Achieving the declared results of the import substitution policy consists of conducting proper monitoring. As part of the work, we proposed an index that covers not only the ongoing process of substitution of imported goods by Russia, but also the impact of changes in domestic products prices as well as the investment part.

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1. Russian agro-industrial complex in the conditions of economic sanctions

1.1. Main agricultural indicators

Russian response to Western sanctions has become an incentive for the domestic agro-industrial complex development. Significant growth is observed in the crop production, which increased by 42% from 2014 to 2016, from 2233 billion rubles up to 3171 billion rubles. (picture 1). The production of livestock products increased by 17% from 2014 to 2016, from 2,097 billion rubles. up to 2456 billion rubles. Despite the positive results, it should be noted that agricultural products have markedly risen in price since 2014 as a result of Russia imposing sanctions on the import of food products. Such an increase leaves a mark on the data given.

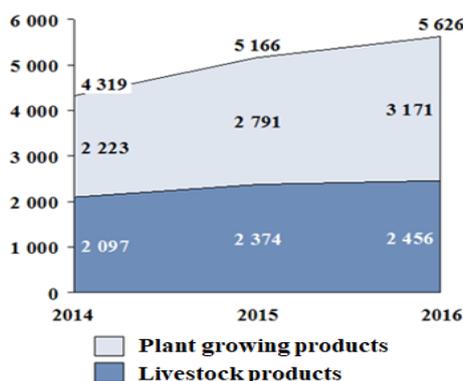


Fig. 1. Agricultural products from 2014 to 2016 (billion rubles)

Compiled by the authors according to Rosstat data

Source: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096652250

The volumes of basic food products import significantly decreased from 2014 to 2016: from 5,638 thousand tons to 4,232 thousand tons in absolute terms or by 25% (Figure 2). The main decrease was in such categories as fresh and frozen meat (without poultry meat) - 39% by 2016 compared to 2014, poultry - 51% by 2016, fresh and frozen fish - 45%, fresh or chilled potatoes - 59%. Despite the introduction of restrictions, some food products showed growth: import of condensed milk and cream increased by 19% by 2016 compared to the indicator of 2014, cereals - by 10% by 2016, vegetable oils - 18%.

Russia took the first place in terms of wheat exports in 2016, which amounted to 25 million tons [Russia became the world leader ..., 2017]. This indicator is 14% higher than the results of 2015 [Russia became the world leader ..., 2017]. It should be noted that grain exports from Russia increased from 31182 thousand tons to 34545 thousand tons by 2016.

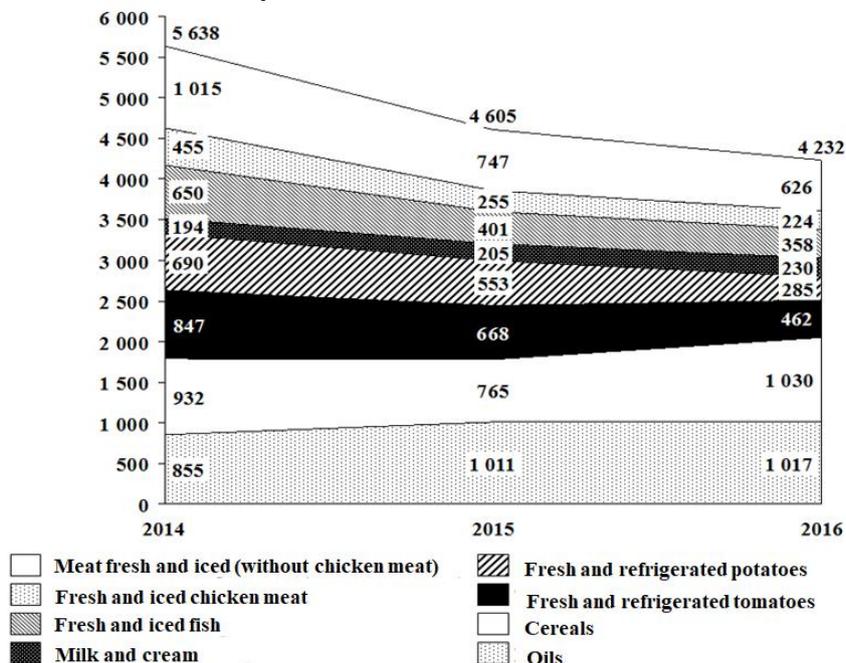


Fig.2. Import of basic food products (thousand tons)

Compiled by the authors according to Rosstat data

Source: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096652250

In the numbers of livestock and poultry there are also positive trends. The greatest growth was in the number of pigs - 12% by 2016 compared to 2014 (from 19546 thousand head to 22027 thousand heads by 2016) (Figure 3). The livestock of sheep and goats remained practically unchanged, the number of cows decreased from 8531 thousand head to 8263 thousand heads by 2016.

It is possible to explain such a sharp decrease in the number of cows if we divide the number of livestock and poultry by farm categories. Significant reduction is observed in the population: according to the cows, the decline was about 8% (from 4006 thousand head to 3716 thousand head.), For pigs - 10% (Figure 3). In other categories of animals, the population also recorded a decrease in livestock by 2016 compared to 2014. This tendency is explained by the growing costs of keeping and purchasing animals, which is connected with the ruble devaluation and inflation.

Sheep and goats are overwhelmingly concentrated among the population and farms, while poultry and pigs are bred in agricultural organizations.

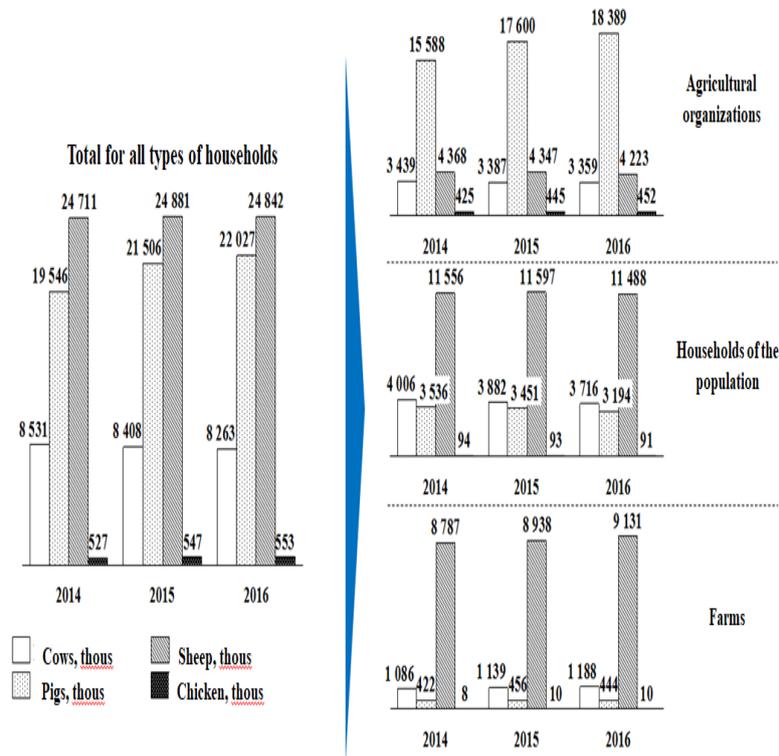


Fig. 3. Livestock and poultry by categories of farms from 2014 to 2016 (at the end of the year, in thousands)

Compiled by the authors according to Rosstat data

Source: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096652250

Financial state of enterprises engaged in agriculture

As a result of the Russian sanctions introduction to western food products import, domestic agricultural producers began to attract large amounts of external financing in absolute terms. Unpaid debt grew by 19% by 2016 (from 1638 billion rubles to 1952 billion rubles); the amount of overdue debt is a small fraction of the total debt; a downward trend is observed in this indicator (Figure 4).

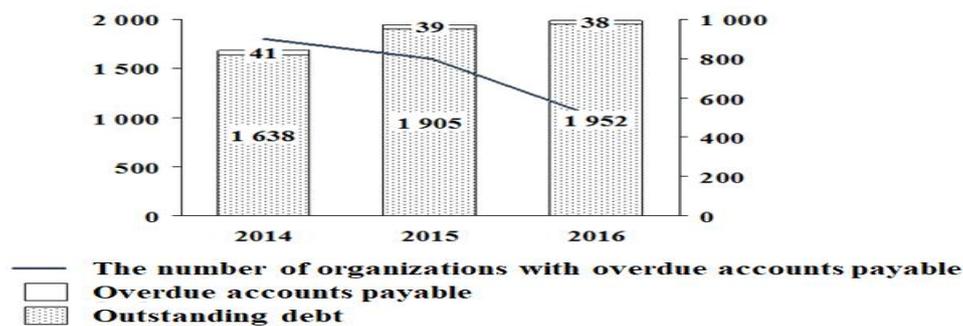


Fig. 4. Overdue and non-outstanding debts of organizations engaged in agriculture (at the end of the year, in billions of rubles)

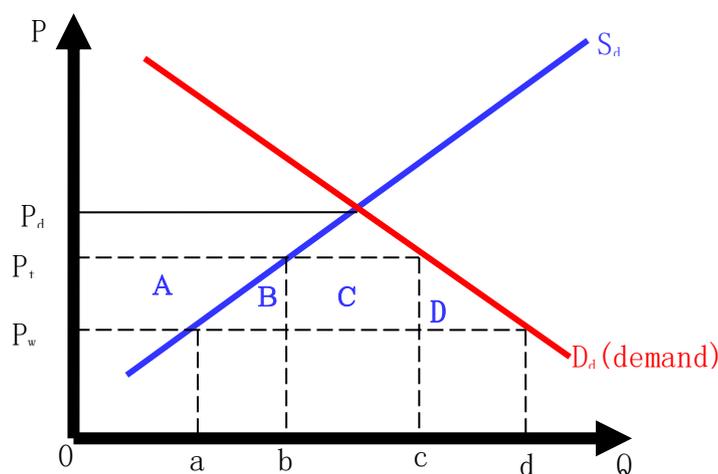
Compiled by the authors according to Rosstat data

Source: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096652250

Obviously, Russian enterprises have found themselves in a privileged position, as long as agricultural products supply in the domestic market has significantly declined. It can be assumed that the rise in prices of food products which began after the introduction of sanctions against Russia, is connected

not only with the ruble devaluation, but also with the monopolistic-like position of Russian companies. Sharp growth in profits and the break-even organizations share can be explained by a decrease in competition.

The impact of the embargo imposed on agricultural products imports from Western countries can be compared with the tariffs effect (Figure 5). Prior to the ban, the price of imported products was P_w , but after Russian anti-sanctions coming into force the number of market participants is declining as the volumes of goods sold. Domestic enterprises occupy the newly formed niche, and production grows from level a to level b . The volume of imports will decrease from the level $(d - a)$ to $(c - b)$. As a result, the price for end-users essentially grows to the level of P_t . The key difference between the sanctions introduction and the introduction of tariffs is that the government does not receive revenues from this policy. However, the losses of consumers are significant, they are equal to $A + B + C + D$, which significantly exceeds the manufacturers' gain (A). Thus, the loss of efficiency is $C + B + D$ and consists of losses in production and consumption.



A - producers' benefit

A+B+C+D - consumers' losses

B+D+C - loss of production efficiency

Fig. 5. Influence of imposed sanctions on food products prices

Source: Nureev R.M. *Development Economics: Models of Market Economy Formation: Textbook.* – 2-nd ed., - M. Norma: INFRA-M, 2015. P. 440 – 446

It should be noted that the rise in prices could take place due to the fact that companies simply could not immediately compensate the existing shortage of food products. At the same time, in order to allocate the food prices have risen due to the imports restriction, it is necessary to conduct a separate analysis of the percentage of materials and resources purchased abroad in the cost of domestic agricultural products.

The agro-industrial complex is difficult to attribute to sectors where it is possible to steadily manage its risks. This is so due to the fact that there are many external factors that directly affect the production volumes of agricultural organizations, for instance, climatic and weather conditions.

But, in our opinion, domestic producers can use the current situation to expand their own production (which will be promoted by the export-aimed strategy), as well as increasing the competitiveness of the Russian agro-industrial complex.

2. Increasing the domestic companies competitiveness through a reasonable import substitution policy

Import substitution has always been an object of close study for Russian economists. At the present time, when Russian and anti-Russian sanctions are introduced, the problem of import substitution becomes the most urgent one. In the message of the Russian Federation President Vladimir Putin at the end of 2014, the following was said: "... reasonable import substitution is our long-term priority regardless

of external circumstances. ... import substitution programs should work to create in Russia a vast share of production companies that can be competitive not only domestically but and on international markets "[President's Address to the Federal Assembly, 2014]. Importance of import substitution policy is mentioned in other addresses of the President:

- "We need to use that situation, which rises because of the sanctions, in order to enter new frontiers of development. ... import substitution - ... I hope that this will lead to the development of high-tech sectors of the economy of larger topics than it was before." [Direct Line with Vladimir Putin, 2015];
- "I propose to launch a large-scale system program for the development of the economy of a new technological generation, the so-called digital economy. In its implementation, we will rely on Russian companies, scientific, research and engineering centers of the country." [Message of the President to the Federal Assembly, 2016].

It is necessary to differentiate the process of import substitution, which can occur during development and modernization of domestic production, which results that products supplant imports according to market mechanisms and import substitution policy, which aims to stimulate the process of ousting foreign goods under the protectionist policy. Here are a few definitions of the import substitution process:

- "This is an increase in the production and consumption of domestic goods while reducing the consumption of imported goods (in physical terms)." [Kadochnikov P., Sinelnikov-Murylev S., Chetverikov S., 2003, P. 43]
- "Increasing the production of local products, while reducing consumption of imported goods (only for goods, the replacement of which is possible and economically feasible)." [Ershova I., Ershov A., 2016, P. 621]

Proceeding from the above definitions it is clear that **import substitution, in a narrow sense**, means the growth of production of domestic goods and a decrease in the consumption of imported products.

An important specification is given in the definition of I. Ershova and A. Ershov, which consists in the following: the replacement of imported goods should not adversely affect consumers. [Ershova I., Ershov A., 2016, P. 621] In our understanding this means that consumers should not suffer

- (1) the deterioration of the quality of products and / or
- (2) price increase.

Compliance with these conditions, in our opinion, is necessary in the implementation of a policy of reasonable import substitution.

In the broader sense, import substitution is understood not only by replacing imported goods and services with domestic finished products and similar services, but also to replace "imported raw materials, equipment, intangible assets, technologies, licenses" [Ershova I., Ershov A., 2016, P. 621]. According to this paper, we will consider import substitution in both narrow and broad senses.

In studies that analyze the impact of import substitution policies based on protectionism on the development of countries, there is a negative effect on the economic situation (especially for the long term). The policy of import substitution in Mexico in the second half of the 20th century brought certain benefits (employment growth, increase in the share of machine and automotive industry in GDP) in the short term, but it also stimulated a decrease in the competitiveness of domestic products in the international market [Aspra LA, 1977, P 118]. The lack of competition with foreign companies led to the fact that Mexican firms began to inefficiently use their resources - according to the estimates of economist M.Sirkuin - industrial production in Mexico in 1965 was 16% lower due to inefficient use of factors of production [Aspra LA, 1977, P. 118]. In the end, the government of Mexico had to abandon this policy, since the costs associated with its implementation became extremely high.

Another example is Chile, where the policy of import substitution by the government in the 1930s was the result of a global crisis. For the purposes of policy realisation and monitoring, special institutions have been established, including the Chilean Development Corporation (Corporacion de Fomento de la Produccion - CORFO), which was responsible for the development of the import substitution strategy and its implementation [Silva E., 2007, P. 73]. Under the leadership of CORFO, not only subsidies were

provided for certain industries, but also the creation of state enterprises, as well as joint ventures with private companies for the development of "electricity, transport, metallurgy, pulp and paper mills" [Silva E., 2007, P. 73]. At the same time, a policy of protectionism was pursued through raising tariffs and manipulating the exchange rate of the national currency.

The implementation of the policy required significant financial resources, which were attracted from the World Bank and the Inter-American Development Bank. Attracting loans did not contribute to stable economic growth, since it, obviously, needed to be returned. This again confirms the high costs of carrying out the policy of import substitution. The result of the policy was: high social costs (due to high inflation), inefficient allocation of resources (as in the case of Mexico), attraction of IMF loans to stabilize the economy. By 1950, "the problem of the balance of payments deficit in the country has become chronic." [Silva E., 2007, P. 75].

An important point to pay attention to is the damage that has been done to other industries from the import substitution policy. In his work, Eduardo Silva notes that there was discrimination in the agro-industrial and mining sectors, as they had to pay a higher price for machinery and equipment and foreign currency than under the free trade regime. As a result of non-competitiveness of food products and current conditions, "agricultural production remained stagnant, and it grew at an average rate of just under 1.5% between 1933 and 1955" [Silva E., 2007, P. 73]. In our opinion, the analysis of the impact of import substitution policy on industries that are not part of the subsidy program is an important stage in the strategy development as it may negatively affect them.

An interesting example was Rhodesia, against which Great Britain imposed trade sanctions in 1965 (later the UN, the USA and other countries joined the policy of sanctions) [Strack H.R., 1988, P. 26]. Despite a significant decline in exports (30%) and imports (39%) in 1966 compared to 1965, which were restored only to the 1970s, the author notes the benefits received by the target country from the imposition of sanctions. The diversification of industrial production, which led to greater independence of Rhodesia from imports (the index of industrial output increased by 88% by 1975 compared to 1965), the country also became practically independent of food imports due to the development of the agro-industrial complex [Strack HR, 1988, P 26-27].

In our opinion, the peculiarity of the case under consideration lies in the fact that the Government of Rhodesia did not have to finance the policy of import substitution; as a result of the imposition of sanctions, trade barriers were created that stimulated the development of domestic production in the country. Even despite the current trade sanctions, which were extremely stringent, Rhodesia exports exceeded the volumes of 1965 by 1972 [Strack HR, 1988, P. 26] - this indicates that the competitiveness of domestic companies did not decrease as a result of barriers created from outside.

Proceeding from the conclusions drawn by the researchers dealing with the problems connected to the policy of import substitution, we believe that import substitution should take place under the strategy aimed at increasing the competitiveness of domestic industries in a natural way, without establishing trade barriers. In other words, the replacement of imported goods with domestic products must correspond to the process of increasing the competitiveness of Russian industry, it should not be an end in itself.

Devaluation of the national currency is one of the most important aspects of a successful policy, as under the influence of the income effect and the substitution effect, consumption of domestic products is growing [Kadochnikov P. et al., 2003, p. 74]. According to P.Kadochnikov and his colleagues, who analyzed the monthly data from January 1994 to September 2002, "strengthening the real exchange rate by 1% leads to the replacement of domestic goods with imports by 0.765% on average in the economy and to 0.96% in the food industry "[Kadochnikov P. et al., 2003, p. 74]. In the food industry, the percentage of replacement of domestic goods with imports was higher than the average for the economy, which means that the demand for the price of the agricultural market is more elastic than in other industries. It can also tell that in the considered period the quality of Russian food products was worse than foreign food.

Among the main obstacles to the successful implementation of import substitution policies aimed at increasing competitiveness there can be identified [Yuriev, VM et al., 2015, p. 21]:

- Restricting the access to credit resources for companies;

- Low level of enterprises awareness about the government programs and support measures;
- Lack of infrastructure for effective promotion of domestic products to foreign markets;
- Low level of development and introduction of innovative technologies;
- Lack of highly skilled employees.

Since both import substitution and export promotion policies are rules dictated from above, the state needs to focus not so much on the volumes of products produced by domestic companies instead of imports but on qualitative changes in the economy as a whole. This implies, among other things, creating new and improving existing institutions, increasing innovation activity, and reducing barriers to market entry for Russian companies.

3. Trends and forecasts of the domestic agro-industrial complex

The policy of import substitution needs detailed elaboration in order its implementation is to stimulate the creation of enterprises that can compete in the international market, rather than lead to monopolization or oligopolization of production. Negative aspects of import substitution, which was common in Latin America in the XX century, were considered in detail by many scientists. Table 1 shows the annual growth rates of labor productivity, capital intensity and total factor productivity [Rodrigues M., 2010, p. 176]. Despite the growth in labor productivity and the capital intensity of production in Latin America, which were higher during the policy of import substitution than the US, the rate of growth of total factor productivity, which reflects technological development, was below the level of the United States and the whole world. Proceeding from this, the following conclusion should be made: the replacement of domestic imported products through the introduction of restrictive measures can lead to increased productivity of Russian companies due to a reduction in supply in the market, but this does not mean the development of innovations and technologies.

Table 1. Average annual growth rates of labor productivity, capital intensity and total factor productivity from 1960 to 1985

	Y/L %	K/Y %	TFP %
Latin America	1,33	1,39	0,51
East Asia	4,74	1,63	2,83
The developed countries	2,40	0,61	1,50
World	2,24	1,08	1,24
USA	1,30	0,56	0,74

Y / L - production per capita; K / Y - the share of used physical capital in the volume of production; TFP - the total factor productivity calculated from the formula $Y=A K^a L^{1-a}$, where $a = 0.3$.

Source: Rodrigues M. Import substitution and economic growth, 2010

One of the main obstacles that impedes the growth of innovative activity in the Russian agro-industrial complex can be called "weak interaction between business, education and science" [Forecast of scientific and technological development ..., 2017, p. 41]. We believe that the best solution, which will promote the development of links between business and science, is the solution of existing challenges of enterprises together with scientists through grants and consulting services.

Other factors that will contribute to the development of the agro-industrial complex include modernization of the infrastructure of agricultural companies, improvement of the investment climate and institutional environment, as well as personnel training systems [Forecast of scientific and technological development ..., 2017]. According to the estimates of the NRU HSE, the share of the Russian agro-industrial complex in the structure of world exports can increase from 1.3% to 4% by 2030 in the implementation of the Global Breakthrough scenario, which implies a technological leap, or up to 1.5% if this is not done. In any case, both options include the formation of the necessary institutional conditions by 2020 and a favorable external environment.

Control over the achievements of Russian companies in the field of import substitution is an essential element in the development of domestic production. The analysis revealed that the main objective of the policy pursued is not much the dominance of Russian firms in the domestic market, but rather the increase of innovative activity and the improvement of the life quality of citizens. To monitor the implementation of the program, we propose to use the index, which was developed by us. This is based on the measure of import substitution considered in the article of George Fain [Fane G., 1973].

$$Ind_t = \left(\frac{X_t}{Z_t} - \frac{X_{t-1}}{Z_{t-1}} \right) \times 0,2 - \frac{(P_t - P_{t-1})}{P_t} \times 0,3 + \frac{(I_t - I_{t-1})}{I_t} \times 0,5$$

, where X is the volume of domestic production (thousand tons), Z is the volume of consumption of all products, including imports (thousand tons), P is product prices (rubles), I is investment (rubles), t is the period.

Index - Ind covers the ongoing process of substitution of imported goods by Russia, the impact of price changes (with a negative sign), as well as the investment component. The coefficient 0.2 reduces the positive contribution of the growth in the volume of production of domestic goods in the total volume of consumption, as long as the decline in imports occurs because of the sanctions imposed by Russia, and not as a result of increasing competitiveness of Russian companies; the higher the price of products from year to year, the more significant the negative impact of the import substitution program on consumers; the investment component plays a key role in the development of innovations, so the share in the index is 0.5. The index can be used both to assess the reasonable import substitution of individual products, and for the agro-industrial complex as a whole.

Using Rosstat's data (domestic production volumes, imports and investments were taken for the agricultural sector as a whole, the cost of a minimum set of food was taken for prices), we calculated the value of the index for 2015 and 2016, which was -0.028 and 0.095, respectively. The improvement is due to increased investment in the agro-industrial sector, as well as a smaller change in food prices in 2016 compared with 2015, the share of domestic products in total consumption increased.

The main goal of the Russian policy of import substitution is to stimulate innovation in order to fully realize Russian comparative advantages. This applies not only to the agro-industrial complex, but also to other sectors of the economy. At the same time, it is necessary to monitor the processes taking place in the domestic market so that the reduction of competition does not lead to monopolization or oligopolisation of certain segments of agriculture, nor does it cause cartel collusion.

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