MACROECONIMIC FACTORS IN REALIZING EXPORT POTENTIAL FOR ANIMAL PRODUCTION

DOI: 10.24411/2588-0209-2018-10023

A.I. Tikhonov

A.A. Fomin

Abstract. The objective of the survey is to study the macroeconomic factors influencing the competitiveness of the animal products and the realization of the animal sector export potential benefits. The survey methodology was based on the domestic and foreign scientists' works in the progressive development of the livestock sector, the formation of the domestic agricultural market, and the increase in the export potential of agriculture. The empirical research was based on the official datasets and the analytical materials obtained from the international unions, the branch associations, and the state institutions. The expert assessment method, the statistical methods in economic evaluation, and the estimation and construction practices were used in the survey. The trends in the animal product exports within the state agricultural development program were determined in the survey. For 2012-2016, the beef export volumes rose nine times, while the pig meat and egg exports reached 18.7 and 15.7 thousand tonnes, respectively. The effects of the devaluation and inflation processes happened to the Russian economy on the economic efficiency and the competitiveness of the domestic animal production were calculated. For instance, the average annual growth rate in the milk production costs for 2011-2016 comprised 8.3% with the increase in the total milk production costs (48.4%). It affected the development and the investment attractiveness of the sector. The measures to improve the mechanisms of the state support and to provide a favorable environment for the Russian animal product exporters in the international market have been proposed. Allocating the subsidies on the livestock product sales in the foreign market can improve the competitiveness of the domestic producers and offer the opportunity to stabilize the price situation in the domestic

market. The other form of a support under the state authorities should be the effective approaches to making easier the administrative barrier to using the veterinary and sanitary control for the domestic goods in the biggest global markets.

Keywords: exports, animal products, global market, import countries, macroeconomic factors, devaluation, inflation, state support

INTRODUCTION

Increasing the animal production volumes within the import substitution program along with decreasing the population's real income has ensured the replacement of the foreign imports with the domestic products. In addition, it has contributed to occurring the market surplus, which was no longer in demand, because of the reduction in the solvent demand and the decline in the level of consumption of the animal source products, since their costs significantly exceed the costs of the protein and fat substitute products. The negative changes in the price situation, which have been observed since the beginning of 2018, are associated with the significant drop in price for animal products (milk, pig meat, and poultry meat) in the domestic market. They caused a decrease in the animal sector profitability. Therefore, some producers faced a dificult financial situation.

The mentioned changes in the market make the producers find out the new markets distinguished by the sustainable development, the high capacity, and the solvent demand to become the active participants of a global trade.

In addition, one of the key factors for increasing the exports is monitoring and analyzing the internal risks and the external threats for competitiveness of the domestic products in the international market along with improving the mechanisms of the state support for promoting the goods and starting up the new regional markets.

This problem is widely reflected in the reports made by the representatives of the business and science communities at the specialized science and production conferences. Thus, the theme of realization of the industrial export potential was the main idea of the reports made by the participants and the discussion forum during the Annual Conference of the National Union of Pig Breeders called "Pig Industry 2017: market is saturated, what's next?", which was held at the International Industrial Academy at the end of 2017. A rather significant importance to this problem was attached at the Congress of the SOYUZMOLOKO National Dairy Producers Union during the AgroFarm 2018 Annual Agro-Industrial Exhibition, held in February 2018.

The science- and practice-based analysis of the effects of the macroeconomic factors on the export competitiveness of the domestic products has been reported.

MATERIALS AND METHODS

The domestic and foreign scientists' works in the progressive animal farming development, the formation of the domestic agricultural market, and the increase in the export potential of agriculture served as the methodological basis of the survey.

The empirical research was based on the official datasets obtained from the Russian Federal State Statistics Service, the Federal Customs Service of the Russian Federation, the Ministry of Agriculture of the Russian Federation, and the Central Bank of the Russian Federation. In addition, the official reports and the analytical materials of the international unions, the branch associations, and the foreign state institutions were used in the survey.

RESULTS AND DISCUSSIAN

The review of the current livestock product export situation finds a significant growth in the product supply capacity. It has been achieved due to increasing the domestic production of goods, their quality, and the competitiveness in the global agro-industrial market due to the national currency devaluation (Table 1).

Table 1. Exports of main traded animal products and by-products ***from*** domestic producers

Item	**Year**									
	2012		**2013**		**2014**		**2015**		**2016**	
	Thousand tonne	**Million USD**	**Thousand tonnes**	**Million USD**	**Thousand tonnes**	**Million USD**	**Thousand tonnes**	**Million USD**	**Thousand tonnes**	**Million USD**
Frozen beef	0.2	1.2	1.1	6.9	1.4	8.1	2.2	9.5	1.8	7.6
Fresh, cold, or frozen pork	0.06	0.3	0.3	1.2	0.4	1.7	4.4	9.1	18.7	41.1
Fresh, cold, or frozen mutton, lamb, and goat meat	0.08	0.03	0.02	0.3	0.04	0.5	0.02	0.2	0.1	0.7
Fresh, cold, or	25.0	29.0	53.8	62.7	61.6	65.0	73.5	78.0	114.9	117.5

frozen poultry meat and by-products										
Milk and non-condensed and non-sweetened cream	15.5	16.7	21.8	24.6	20.2	23.8	43.0	25.4	48.0	25.7
Evaporated or sweetened milk and condensed or sweetened cream	28.0	46.1	29.6	62.2	31.5	63.9	25.1	32.4	26.5	32.4
Fresh, preserved, or boild poultry shelled eggs	0.1	0.4	17.8	24.8	13.3	19.1	13.7	16.2	15.8	17.1

*Source: based on the official statistics supplied by the Federal Customs Service of the Russian Federation [1]

However, it should be noted that the major importing countries of the animal-source products are the neighboring countries with a rather low standard of living and solvent demand.

However, the mentioned high growth rates are provided by substitution of the domestic market demands and the real shortage of the animal source products in total exports over the recent years. In 2012, the domestic producers exported only 200 tons of beef, 60 tons of pig meat, 80 tons of lamb, and 100 tons of eggs to their foreign partners. In addition, the Russian producers happened to increase the beef export volume nine times for 2012-2016; they increased the pig meat and egg export supplies up to 18.7 and 15.7 thousand tons, respectively. The

volumes of sales in global market for the dairy products and poultry meat were at the elevated level, while they remained rather insufficient.

Thereafter, increasing the exports of the value added ultra-processed products should require entering the more advanced and competitive markets characterized by the high demands on the product quality and the strict contrctual obligations [8].

The current situation and the domestic market closure for the food imports, caused by the falling capacity utilization after introducing the retaliatory economic sanctions imposed on a range of the Western countries, made the most technologically developed producers shift to manufacturing the high-quality export-oriented goods.

A severe competition in the international agricaltural market and unfavorable crisis phenomena in the Russian economy followed by the sharp national currency fluctuations and the higher devaluation processes require monitoring and analyzing the facts influencing the competitiveness of the livestock products.

This problem facing the producers occurred after the national currency devaluation at the end of 2014 and the approximately twofold increased prices of the imported equipment and the foreign current means, which usually do not have any Russian analogs.

The analysis of the economic efficiency of the livestock products was performed to assess the macroeconomic factors for the sector export potential development. It was ascertained that the sales of the livestock products excluding milk and pork are considered unprofitable for the most agricultural organizations (Table 2). Thus, the unprofitable degrees of the beef sales, the sales of sheep and goat meat, and the sheep wool sales comprised 24.1%, 1.8%, and 42.6, respectively, according to the data from the Ministry of Agriculture of the Russian Federation. It causes stagnation in the domestic beef cattle and sheep farming, followed by the increase in the proportion of the imported products in the domestic market [5].

Table 2. Economic efficiency of manufacturing and selling the animal products*

Item	**Year**						**2016 to 2011, %**
	2011	**2012**	**2013**	**2014**	**2015**	**2016**	
Production costs of 1 centner of a product, rubles							
Bovine milk	1208	1238	1411	1540	1685	1793	148.4
Beef	10946	11571	12865	13652	14891	14178	129.5
Pork	6067	6020	6130	5966	6787	7240	119.3
Mutton. lamb, and goat meat	6018	6715	7192	7571	8247	8782	145.9
Sheep wool	11075	11008	11533	9600	10690	11615	104.9
Mnufacturing and selling costs of 1 centner of a product, rubles **							
Bovine milk	82	54	78	91	95	99	120.7

Beef	-1878	-1631	-2275	-2094	-1832	-591	31.5
Pork	307	933	848	1162	1209	645	210.1
Mutton. lamb, and goat meat	-413	-526	-539	-209	-346	-61	14.8
Sheep wool	-543	270	-300	711	374	-1094	201.5
Costs of 1 centner of a sold product, rubles							
Bovine milk	1290	1292	1489	1631	1780	1892	146.7
Beef	9068	9940	10590	11558	13059	13587	149.8
Pork	6374	6953	6978	7128	7996	7885	123.7
Mutton. lamb, and goat meat	5605	6189	6662	7362	7901	8721	155.6
Sheep wool	11618	11278	11233	10311	11064	10521	90.6
Selling price of 1 centner of a product, rubles							
Bovine milk	1486	1450	1697	2067	2181	2282	153.6
Beef	6859	7527	6917	7534	9630	10308	150.3
Pork	7829	8660	7514	10183	10773	9712	124.1
Mutton. lamb, and goat meat	5319	6401	6501	6846	7351	8564	161.0
Sheep wool	5150	4978	5209	4520	5800	7131	138.2
Profit (loss) by selling 1 centner of a product, roubles							
Bovine milk	196	158	208	536	411	390	199.0
Beef	-2209	-2413	-9893	-4024	-3429	-3279	148.4
Pork	1455	1707	538	3055	2777	1827	125.6
Mutton. lamb, and goat meat	-286	212	-161	-516	-550	-157	54.9
Sheep wool	-6468	-6300	-6024	-5791	-5264	-3390	52.4
Profitability (unprofitability) of selling 1 centner of a product, %							
Bovine milk	15.2	12.2	14.0	35.0	23.1	20.6	5,4 percentage points
Beef	-24.4	-24.3	-93.4	-34.8	-26.3	-24.1	3,0 percentage points
Pork	22.8	24.6	7.7	42.9	27.8	23.2	0,4 percentage points
Mutton, lamb, and goat meat	-5.1	3.4	-2.4	-7.0	-7.0	-1.8	3.3 percentage points
Sheep wool	-55.7	-55.9	-53.6	-56.2	-49.4	-42.6	13.1 percentage points

* Source: based on the official statistics supplied by the Ministry of Agriculture of the Russian Federation [4]

**The negative value for an item indicates the product primary processing and selling unprofitability

One of the key factors for a sustainable development of the domestic animal husbandry under the current conditions of farming is setting a price strategy in the domestic agricultural market and achieving a steady level of livestock production profitability and the product sales (Table 3).

Table 3. Formation of price conjuncture and money supply from the sale of some product of animal origin on the domestic agricultural market

Item	Year					Average of 2012- 2016
	2012	2013	2014	2015	2016	
Foddstuff price indices and consumer inflation level						
Agricultural price index, %	110.8	102.7	114.1	108.5	101.8	107.6
Price index for food and non-alcoholic beverages, %	106.7	106.0	116.4	114.8	104.2	109.6
Consumer price index for goods and services (Consumer price inflation), %	106.6	106.5	111.4	112.9	105.4	108.6
Population's real disposable income index, %	104.6	104.0	99.3	96.8	94.1	99.8
Animal product sale price indices, %						
Bovine milk	97.6	117.0	109.5	109.1	106.3	107.9
Beef	109,7	91,9	108,9	127,8	107,0	109.1
Pork	110.6	86.8	135.5	105.8	90.2	105.8
Mutton, lamb, and goat meat	120.3	101.6	105.3	107.4	116.5	110.2
Sheep wool	96.7	104.6	86.8	123.9	127.3	107.9
Proceeds from the agricultural product sale, milliard roubles						
Proceeds from the agricultural product sale	1384.0	1403.8	1798.1	2232.2	2288.7	9106.8**
Including plant products	555.8	527.2	665.8	905.4	961.3	3615.5**
Including livestock products	828.2	876.6	1132.3	1326.9	1327.4	5491.3**
Proceeds from the animal product sale, milliard rubles						
Bovine milk	186.7	206.1	261.4	284.8	304.8	1243.8**
Beef	81.8	75.9	81.6	102.0	101.5	442.8**
Pork	185.8	206.3	317.0	357.2	314.3	1380.6**
Mutton, lamb, and goat meat	2.9	3.0	3.4	3.5	3.3	16.1**
Sheep wool	0.3	0.3	0.3	0.4	0.6	1.9**
Index of the proceeds from the agricultural product sale, %						
Index of the proceeds from the agricultural product	120.5	101.4	128.1	124.1	102.5	114.3
Including plant products	127.8	94.9	126.3	136.0	106.2	118.2
Including livestock products	116.0	105.8	129.2	117.2	100.1	113.7
Index of the proceeds from the animal product sale, %						

Bovine milk	101.4	110.4	126.8	109.0	107.0	110.9
Beef	111.2	92.8	107.4	125.0	99.5	107.2
Pork	136.3	111.1	153.7	112.7	88.0	120.4
Mutton, lamb, and goat meat	119.7	101.1	111.7	104.3	95.2	106.4
Sheep wool	87.0	94.6	108.8	128.6	148.2	113.4

* Source: based on the official statistics supplied by the Ministry of Agriculture of the Russian Federation [4] and the Russian Federal State Statistics Service [3]

**Total gross proceeds from the sale of the product fro 2012-2016

In addition, the domestic animal farming has a high production potential and the enormous capabilities for a sustainable development of the sector and the competitive production capacity in the domestic and foreign top-quality product markets [6].

The performed analysis of the current state of the market conditions and the monetary domestic market capacity has proved the steady dynamics of prices for the livestock products, which do not exceed the growth rates for the agricultural products, being comparable with the level of the consumer inflation.

However, the sharp fluctuations of prices for certain products were recorded, despite the steady level of the price situation in the domestic market. Introduction of the retailiatory economic measures, a sharp rise in the foreign product prices due to the national currency devlauation, and a reduce in the domestic production output resulted in the significant increase in the beef prices, comprising 27.8% in 2015 and exceeding the average annual level of the consumer inflation by 14.9% [7].

A 35.5-% significant increase in the producer sale prices for pork in 2014 was caused by a reduce in the domestic market capacity after the ban on the pig-meat product imports from the countries of North America and a range of countries from Western Europe. The Federal Service for Veterinary and Phytosanitary Surveillance of the Russian Federation introduced this prohibition.

Thereafter, an increase in the prices resulted in the increase in the proceeds from the animal product sales. The total proceeds from the animal product sales for 2012-2016 made up 5491.3 milliard rubles, comprising 60.3% of total proceeds from the agricultural product sales for the same period. In addition, 1243.8 and 1380.6 milliard rubles are the shares of milk and pork sales, respectively, or 22.7% and 25.0% of total proceeds from the animal product sales, respectively [6].

It should be noted that the production costs were determined under the conditions of the national currency devaluation for 2014-2015 and the financial asset supply limitation in the market. It was caused by a sharp increase in the key rate introduced by the Central Bank of Russia. It was followed by a rise in the price of credit resources, which resulted in the

intermittent increase in the production costs and expenses in the most vulnerable animal production subsectors with a typically long investment cycle, which were most dependent on the foreing imports (Table 4).

Thus, the average annual increase in the production costs and the milk sales over the recent five years comprised 8.3% and 8.1%, respectively. In addition, the total increase in the milk production costs for 2011-2016 comprised 48.4%. It exceeds the expense growth rates for production of the other kinds of livestock products, affecting the dairy cattle development and its investment attraction.

Table 4. Effects of inflation and devaluation processes on efficiency of animal production and sales

Item	Year					Average of 2012- 2016
	2012	2013	2014	2015	2016	
Price indieces of industrial goods, fuel and energy resources, , and trade-weighted major global currency exchange rates to one Russian ruble, %						
Producer price index for Industrial commodity	105.1	103.7	105.9	110.7	107.4	106.6
Producer price index for manufacturing	103.2	101.6	108.5	111.2	107.7	106.4
Price index of fuel and energy resources	105.7	110.0	92.4	110.6	116.5	107.0
Index of trade weighted U.S. dollar to Russian ruble exchange rate	105.8	102.4	120.6	158.7	110.0	119.5
Index of trade weighted Euro to Russian ruble exchange rate	97.7	105.9	120.1	133.4	109.5	113.3
Index of production costs of 1 centner of a product, %						
Bovine milk	102.5	114.0	109.1	109.4	106.4	108.3
Beef***	105.7	111.2	106.1	109.1	95.2	105.5
Pork	99.2	101.8	97.3	113.8	106.7	103.8
Mutton, lamb, and goat meat**	111.6	107.1	105.3	108.9	106.5	107.9
Sheep wool**	99.4	104.8	83.2	111.4	108.7	101.5
Index of mnufacturing and selling costs of 1 centner of a product, %						
Bovine milk	65.9	144.4	116.7	104.4	104.2	107.1
Beef ***	86.8	139.5	92.0	87.5	32.3	87.6
Pork	303.9	90.9	137.0	104.0	53.3	137.8
Mutton, lamb, and goat meat**	127.4	102.5	38.8	165.6	17.6	90.4
Sheep wool**	49.7	111.1	237.0	52.6	292.5	148.6
Index of costs of 1 centner of a sold product, %						
Bovine milk	100.2	115.2	109.5	109.1	106.3	108.1
Beef **	109.6	106.5	109.1	113.0	104.0	108.4
Pork	109.1	100.4	102.1	112.2	98.6	104.5

Mutton, lamb, and goat meat**	110.4	107.6	110.5	107.3	110.4	109.2
Sheep wool**	97.1	99.6	91.8	107.3	95.1	98.2

*Source: based on the official statistics supplied by the Ministry of Agriculture of the Russian Federation [4], the Russian Federal State Statistics Service [3], and the Central Bank of the Russian Federation
и Центробанка России [2]

**The inicator proves the growth rates (slowing) of the losses, since this production is considered unprofitable

The general dynamics of the values for the economic efficiency of the livestock product sales for 3012-2016 can indicate the increased profitability of the pig meat production and the milk production with the 74.7-% and 28.3-% average annual profitable growth of sales, respectively, and simultaneous losses in beaf and lamb-and-goat meat production, comprising 48.1% and 21.1%, respectively [5].

A significant growth of profitability of pig meat and milk sales was determined, which was caused by reducing the imports and the domestic market capacity. It was followed by a significant rise in the prices for the animal source products after introduction of embargo on certain products and an increase in the imported product costs because of national currency weakening [6].

However, the effect of this factor appeared short-term, since the increases in the foreign technological equipment costs along with the material and technical resources resulted in the significant increase in the production costs and the product sale expenses.

Therefore, the authors consider that the high-tech import dependence occurred over the recent years is a key factor making the domestic livestock sector impossible to achieve the sustainable vector development and to increase the production capacity in order to substitute the livestock-product imports in the domestic market [6].

Increasing the economic efficiency of the livestock sector and enhancing the export opportunities of the industry require developing the strategy for realizing its production and material-and-technical potential, which can meet the current market demands and contribute to the investment attraction of the industry.

Implementation of outcomes. Therefore, realizing the sectoral export potential is in the direct relation with the organizational, economic, natural, and climatic factors and the factors of production, which have the effects on the capacity of production and its competability in the global market. Thus, the advantageous natural and climatic environments and the profitable technological conditions for the milk production in the top countries of Oceania and Latin America for the grassland area and the favourable temperature regimes can provide the opportunities for farmers to develop the year-round grazing systems with the lowest operating

costs and managing expenses. It contributes to increasing the production output to occupy the key position in the global dairy trade.

In addition, milk production cost benchmarking has proved that the domestic producers can be competitive even under the existing economic conditions, when compared to the farmers from the countries of Western Europe and North America.

In order to determine the milk production costs, the authres have applied the official datasets obtained from the state agriculturual authorities and the foreign regional associations with the use of the information of the Central Bank of Russia on the national currency weighted exchange rate (Table 5).

Table 5. Comparative analysis of milk production costs in Western Europe and North America countries, rubbles/kg

Country	**Year**				
	2012	**2013**	**2014**	**2015**	**2016**
Russia	12.4	14.1	15.4	16.9	18.1
USA	7.9	9.8	10.9	16.5	17.4
Canada	24.2	23.9	27.5	37.2	38.7
Netherlands	17.1	18.9	25.6	28.6	31.9
Germany	17.6	19.4	22.6	28.5	30.4
France	16.3	18.5	2.1	28.7	30.4
Denmark	16.7	18.1	21.7	27.0	29.7
Belgium	16.1	13.2	21.5	31.0	30.3

*Source: based on the official statistics supplied by the Ministry of Agriculture of the Russian Federation [4], the United States Department of Agriculture (USDA) [11], the Canadian Dairy Commission (CDC) [9], the European Milk Board (EMB) [12], and the Central Bank of the Russian Federation [2]

The data from Table 5 prove the competiteveness of the domestic dairy cattle farming and the wide opportunities for increasing the export capacity of milk and dairy products. In addition, the previous devaluation has had a significant effect on the development of the sectoral export potential, improving the milk production costs in ruble terms.

CONCLUSIONS

Development of the livestock product exports requires improving the state package support focused on stimulating the foreign economic activity of the domestic producers and the Russian product promotion in the new markets, ensuring their protection in the world structures regulating the global trade.

One of the key directions of the government support for the livestock product exports should be allocating the subsidies on the animal-source product sales in the foregn market. It can increase the competitivenes of the domestic producers and provide the opportunity to stabilyze

the price situation in the domestic market, ensuring the steady level of profitability within the entire production and supply chain.

The other form of a support under the state authorities should be the effective approaches to making easier the administrative barrier to using the veterinary and sanitary control for the domestic goods in the biggest global markets. This direction became of great importance for both the enhancement of the opportunities of the foreign activity in the international agricultural product market and the protection of the domestic market products against the specific diseases induced by the pathogens, causing the economic losses [10].

Therefore, the dispropotions in the development of livestock farming, which are caused by both the economic and biological specificities in breeding and the level of development of market infrustructures along with the macroeonomic processes in the economy, can usually predetermine the competitiveness of the productes and the efficiency of realizing the export potential of the sector.

AKNOWLEGMENTS

The article is made up according to the themes within the state task of the Federal Agency for Scientific Organizations of Russia (FASO Russia), AAAA-A18-118020590174-2.

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AUTHOR INFORMATION:

Tikhomirov, Aleksei Ivanovich, Candidate of Economic Sciences, Senior Staff Scientist, Laboratory for Economics and Policy in Animal Husbandry

Fomin, Aleksandr Anatolievich, Candidate of Economic Sciences, Professor, Moscow State University of Land Management, President, Foundation for Stolypin National Prize

ORCID: http://orcid.org/0000-0002-3881-8348, agrodar@mail.ru