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INVESTMENT POLICY FEATURES IN THE AGRICULTURAL SECTOR OF RUSSIAN REGIONS

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Abstract

The development of agricultural sector is one of the most important factors in ensuring the country's economic stability. The state macroeconomic policy in all developed countries includes significant financing programs for agricultural producers, which include preferential loans for purchase of equipment and materials, purchase of surplus products from producers in the event of particularly large harvests, as well as outright grants and subsidies to farmers. Besides that, the most important condition for the development of agriculture is properly built and well-organized investment policy, which, taking into account the production instability and the probabilistic result, should also be supervised by state structures. This problem particularly is relevant for Russia, since significant part of the country's territory is located in the risky farming zone, where private producers left to themselves simply cannot exist and, moreover, compete on equal terms with outisde suppliers. Therefore, the general instability of determining investment factors affects primarily the agricultural sector, which defines the need for detailed consideration of this issue. The presented article analyzes the development of agricultural industry in the Russian Federation central regions.

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Keywords: Investment, regional economy, food security, production of agricultural products

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1. Introduction

Currently, in the context of sanctions policy on the part of foreign countries against the Russian Federation, the problem of ensuring food security has become urgent. In this regard, it is interesting to analyze the results of agricultural activities on regional scale, in the context of unstable investment inflow both in agricultural sector and in the industry of regions. This problem is of particular relevance if it concerns one of the large agricultural regions in the central part of the European Russia.

2. Problem Statement

Voronezh, Kursk, Lipetsk, Tula and Oryol Oblasts for the period 2010-2018 were selected as research targets. The study data were taken for 2010-2018 from the official website "Federal Service for Hydrometeorology and Environmental Monitoring", from the scientific applied reference book on the USSR climate, and from the reference book "Russian Regions. Main features of the constituent entities of the Russian Federation 2019 "(Russian Regions, 2020).

Voronezh, Kursk, Lipetsk, Oryol and Tula Oblasts are located in the central part of the European Russia. This location defines rating of the study oblasts in the Central Federal District.

3. Research Questions

The high-intensity development of agricultural sector is facilitated by favourable natural and climatic conditions. Large sales markets, high-yielding chernozems, good transport links are all the main advantages of the Central Federal District.

The considered oblasts of the Central Federal District differ among themselves in terms of agricultural sector development level and rates. In terms of the agricultural sector's contribution share to the gross regional product, the absolute leaders are the Oryol and Kursk Oblasts. At the same time, the Voronezh Oblast shows the highest average annual growth rate - 20% (see Table 1).

Table 1. Agricultural sector development in the study regions

Region	Agro-industrial complex share in GRP	Average annual growth rate of agro-industrial complex contributon to GRP
Voronezh Oblast	15%	20%
Kursk Oblast	19%	14%
Lipetsk Oblast	13%	16%
Oryol Oblast	20%	15%
Tula Oblast	7%	12%

The agricultural sector is one of the key sectors of the Oryol Oblast economy. The contribution of this oblast to the GRP is 20% - this is the highest value among the presented oblasts of the Central Federal District. The Oryol Oblast is one of the three leaders in terms of the agro-industrial complex rate - over the past 8 years, the average annual growth rate of agro-industrial complex contributiom to the gross regional product was 15%. Besides the Oryol Oblast, it is important to highlight the Voronezh and Lipetsk Oblasts.

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The leaders in terms of agricultural production have significant agro-industrial complex share in the gross regional product as compared with other study oblasts, and also show the highest average annual growth rates. The basis of this result is systematic, long-term approach to the sector development, the concentration of efforts in precisely those areas where they give the greatest return (Polevoy, 1992).

Oryol, Tula, Lipetsk, Voronezh Oblasts account for the main crops of wheat. The largest areas of industrial crops (flax and sugar beet) are in the Lipetsk and Kursk Oblasts. Flax growing is represented in the most humid areas of region`s non-chernozem zone, which are not the study oblasts. Crops of sugar beet are widespread in Kursk and Lipetsk Oblasts, where they occupy significant areas of highly fertile chernozem lands. Sunflower crops are common in the Voronezh Oblast. The horticulture has developed the Central Chernozem Region in the Lipetsk Oblast. These oblasts also specialize in the cultivation of vegetables and potatoes (Seryakova, 1978).

There is no any dependence "the larger area - the greater yield" (see Table 2 and Table 3).

Table 2. Area of grain and leguminous crops, thousand hectares

Oblasts	Years								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Voronezh	46.6	53.3	55.7	57.4	56.2	56.4	56.7	57.1	56.8
Kursk	66.9	66.8	65.2	66.6	64.3	67.2	65.0	63.0	59.9
Lipetsk	62.9	64.6	62.9	61.0	60.3	61.6	61.7	58.6	57.5
Oryol	73.0	71.1	71.0	72.4	72.1	74.5	74.9	70.3	70.0
Tula	69.3	67.8	64.6	66.1	65.3	69.1	70.8	69.0	65.3

Table 3. Productivity of grain and leguminous crops by oblasts for 2010-2018, ton per hectare

Oblasts	Years								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Voronezh	0.8	2.3	2.2	2.6	3.1	2.9	3.4	3.8	3.3
Kursk	1.7	2.8	3.0	3.6	4.3	3.4	4.2	4.9	4.7
Lipetsk	1.6	2.5	2.5	3.3	3.3	3.0	3.5	4.0	3.9
Oryol	1.9	2.2	2.7	3.2	4.0	3.0	3.3	3.6	3.6
Tula	1.7	1.8	2.5	2.5	3.1	2.8	2.7	3.2	3.2

The Voronezh Oblast has a large sown area of grain and leguminous crops throughout the entire study period, but the yield in this oblast is quite low. But the Kursk Oblast is the leader in yield among the study oblasts, despite the fact that its sown area is much less than the sown area of the Voronezh Oblast. From this discrepancy, it can be concluded that traditional technologies "the more they planted, the more they harvested" no longer work; they were replaced by new technologies for crops sowing, harvesting and processing, as well as innovative developments of scientists (Belkina, 2015).

The low productivity of the Tula Oblast is explained not only by the insignificant sown area, but also by the fact that this oblast is the northernmost among the studied oblasts. Hence, we conclude that the natural factor also has great influence on the yield.

4. Purpose of the Study

Agricultural sector plays the very important role in the development of entire country. According to data for 2018, agricultural sector accounts for about 40% of total GDP. The agricultural production volume

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in the Central Federal District in 2018 amounted to 1,467,970 million RUB. Agricultural sector is at the stage of development and updating of existing technologies, which, in the context of import substitution and growing demand for agricultural products, increases the number of competitors in this industry (Gringof & Pavlova, 2013).

After analyzing the agricultural sector development in the studied oblasts, we identified the leading oblasts in terms of the agricultural sector development level (see Figure 1).

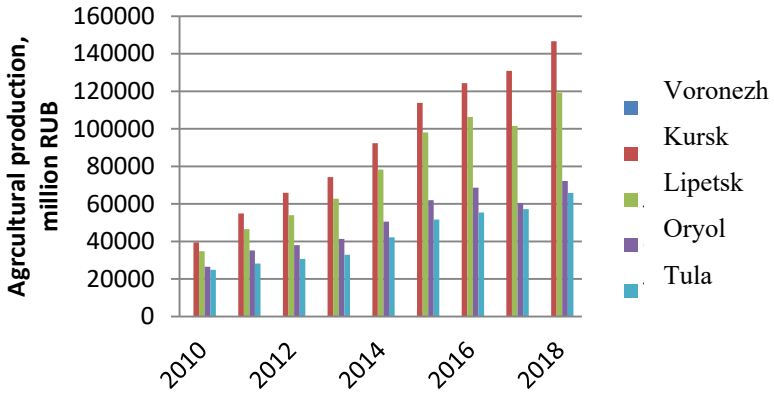

Figure 1. Agricultural products in farms of all categories by oblasts for 2010 - 2018, million RUB

According to submitted data, we can conclude that the Voronezh Oblast is the leader in terms of agricultural sector development. According to 2018 data, the Voronezh Oblast ranks 11th place in Russia. In 2018, the agricultural production volume amounted to 219,151 million RUB. As compared to 2010, the growth rate of the agricultural production volume amounted to 69%. Among the studied oblasts, the Voronezh Oblast occupies the leading position. In terms of the volume of agricultural products, the Kursk Oblast ranks 30th place in 2018. We can also note the Lipetsk Oblast, which ranks 33rd place among the Russian Regions. In the Oryol and Tula Oblasts, the dynamics of manufactured products is significantly lower than in the leading regions from the studied oblasts, but there is still the positive factor - there is slight increase in the cost of manufactured products as compared to 2010. Oryol and Tula Oblasts have little impact on the agricultural sector development in Russia. These oblasts rank 44th and 80th place, respectively.

As noted earlier, agricultural sector occupies special place in the country's economy. Its task is to provide the population with food, and the processing industry - with feedstock. It should be recognized the particular importance of this industry efficiency, which directly effects the population well-being level (Gagulina et al., 2019). The agricultural sector development level determines the country`s economic stability and food security level. Food security is determined by food self-sufficiency. Food self-sufficiency is the system of interconnected subsystems structured by functional, organizational, resource and technological features, which the main goal is reliable (uninterrupted) and sufficient (as per medical and hygienic standards) supply of population with basic foodstuffs, guaranteeing getting rid of risk of famine or malnutrition (Gringof & Kleschenko, 2011).

Consequently, it is necessary to achieve such result when the country's food self-sufficiency would proceed from regional self-sufficiency.

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5. Research Methods

Regional food self-sufficiency is the region's economy level enabling managing with its own food resources without resorting to the need to import products from other regions (Bierbrauer & Boyer, 2016). However, it is not always worth using products of exclusively regional production, since this is not always economically profitable - the import of food products from other regions can be cheaper (Zhurina & Losev, 2012).

For regional food self-sufficiency in food resources, it is necessary to take into account the peculiarities of regional structure of agricultural production and food consumption, identify the most promising markets and orient new investment projects there (Gringof & Pavlova, 2013).

Large markets for agricultural products, high-yielding chernozems, good transport links are all the advantages of the Central Federal District, which can be fully disclosed using the mechanisms of regionalization of the agro-industrial complex.

The Central Federal District, at the expense of its own production, provides consumption by product categories: "potatoes" and "meat and meat products". At the same time, milk and dairy products, vegetables and melons and gourds, as well as eggs are in short supply.

We can conclude that the Voronezh Oblast is the leader in potato production, as seen in Table 4, At the same time, it is worth mentioning the Oryol and Tula Oblasts, whose potato production volumes are significantly higher than the self-sufficiency level. Tula and Oryol Oblasts are large producers supplying significant volumes outside this region (see Table 4).

Table 4. Production and level of supply of potatoes in the studied oblasts

Region	Production, thsd tons	Self-sufficiency level, %
Voronezh Oblast	1562.1	132
Kursk Oblast	800.9	106
Lipetsk Oblast	648.8	120
Oryol Oblast	414.1	148
Tula Oblast	909.5	128

The cultivation of vegetables and melons is promising vector for agricultural sector development in these oblasts. Own production provides approximately 2/3 of all the needs of the population (see Table 5).

Table 5. Production and level of supply of vegetables in the studied oblasts

Region	Production, thsd tons	Self-sufficiency level, %
Voronezh Oblast	549.7	102
Kursk Oblast	144.7	92
Lipetsk Oblast	178.6	118
Oryol Oblast	82.7	97
Tula Oblast	170.9	89

The largest vegetable producer is the Voronezh Oblast. However, this oblast covers only its own needs and does not currently have significant surpluses for supplies to other regions.

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Only the Voronezh and Lipetsk Oblasts have self-sufficiency level in vegetables over 100%. Other studied regions are experiencing shortage of vegetables. Considering that this product is difficult and expensive to transport, the development of regional vegetable production will have good prospects here.

An important advantage of using all available resources in the region is the ability to quickly and visually assess the current situation in the region, to determine the most promising areas of development. This tool provides opportunity to apply systematic approach to the agricultural sector development, enables to clearly define priorities for entrepreneurs and farmers, as well as to use opportunities and advantages of the region's agro-industrial complex to the maximum (Novikov & Zhulega, 2020).

Economic activity in modern conditions cannot be imagined without investment. Investments are opportunity to make profit and achieve development goals in the future by placing financial and other funds in entrepreneurial activity in the present.

At this stage of development, the economic situation of the Russian Federation shows that the country is faced with the problem of reducing not only foreign investment, but also with the problem of reducing public investment in the country's economy.

Basically, the decline in investment in Russia is associated with the ruble exchange rate instability, tight monetary policy, the unstable economic situation in the country and in the world, external economic tension, the imposition of sanctions against the Russian Federation, since conservative investors prefer a stable economic situation with minimal risks (Gagulina et al., 2020).

The most difficult situation has developed in agricultural sector due to the long investment return period, low industry profitability and imposition of sanctions from 2014 by foreign countries.

Due to the prevailing political relations between the countries, imposition of sanctions on food supply and anti-sanctions on the Russian Federation part, arose task to ensure food security and the agricultural sector becomes attractive for investments in these conditions (see Table 6).

Table 6. Investments in fixed assets (in actual prices), million RUB

Oblasts	Years								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Voronezh	125826	155245	182334	216983	240272	264660	270992	283652	279213
Kursk	46093	58521	66639	71546	73695	73745	93659	100895	119892
Lipetsk	101600	112531	93327	101093	105588	116134	127891	142407	128533
Oryol	21451	34072	40429	43741	47580	47981	43596	43670	49547
Tula	71526	77703	84059	91046	95235	105629	112561	128564	154752

6. Findings

Among the studied oblasts, the leader in investment is the Voronezh Oblast with constant increase in investment volumes. The second place with heterogeneous dynamics is the Lipetsk Oblast, showing decrease in investment volumes over the period 2017 to 2018. There has been investment increase in Tula, Kursk and Orel regions during recent years.

Having data on the intensity of annual investments and using information on the yield of grain crops (Table 3), let us analyze the role of investments in increasing yields. It was possible to define that the maximum yield increase in 9 years is typical for the Voronezh Oblast and amounted to 4.75, the leader in

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terms of investment. In other regions: Kursk Oblast 2.9, Lipetsk Oblast - 2.5, Oryol Oblast - 2.1, and with minimum increase, Tula Oblast - 1.9 (Table 7).

Additionally, to assess the significance of investments in development of grain production, the correlation ratio was calculated between the values of investment behaviour and the annual yield of grain crops. All oblasts have direct linear relationship with the correlation ratios: Voronezh Oblast - 0.92 the closest dependence, Kursk Oblast - 0.88, Oryol Oblast - 0.86, Tula Oblast - 0.81 and Lipetsk Oblast - 0.73 (Table 7).

Table 7. Dynamics of yield growth and correlation between yield values and investment volumes

Oblasts	Indicators	
	Yield growth dynamics	Correlation between yield values and investment volumes
Voronezh	4.75	0.92
Kursk	2.88	0.88
Lipetsk	2.50	0.73
Oryol	2.10	0.86
Tula	1.90	0.81

It may be interesting to find data on the relationship between proportion of investments in fixed assets financed from budget funds in the total volume of investments from the federal budget and the values of grain yield (Table 8).

Table 8. Share of investments in fixed assets financed from budgetary funds in the total volume of investments from the federal budget, % and their correlation with grain yield

Oblasts	Correlation	Years								
		2010	2011	2012	2013	2014	2015	2016	2017	2018
Voronezh	- 0.76	33.3	28.8	17.3	17.5	22.3	25.4	17.2	14.4	12.8
Kursk	0.76	4.8	5.9	4.0	4.4	8.7	3.7	8.3	11.8	15.0
Lipetsk	- 0.88	16.8	9.4	5.1	8.1	4.5	5.8	2.4	1.9	3.0
Oryol	- 0.27	11.6	8.9	15.2	16.3	11.7	11.4	8.3	5.9	6.2
Tula	- 0.68	14.3	4.2	7.0	8.2	4.8	4.4	7.7	3.0	1.3

In four oblasts, except for the Kursk Oblast, we observe the opposite (negative dependence). Based on these values, it can be assumed that the agricultural sector development in these oblasts, including the grain industry, is due to regional investments. The Lipetsk and Voronezh Oblasts attracted the maximum volumes of investments. The Kursk Oblast received investments from the federal budget for the agricultural sector development.

7. Conclusion

Thus, as conclusion on the study results, the following should be noted:

- There has been observed the investment increase in the studied regions during recent years. Moreover, these investments are carried out by both state and private commercial structures. Steady increase in the yield of grain crops is observed due to well-structured investment policy.

- The study oblast`s self-sufficiency level is increasing in terms of the level of supply of the population with agricultural products. The area of cultivated areas is increasing due to involvement of previously idle lands in agricultural circulation.

References

Belkina, A. (2015). Socio-economic inequality of the Russian regions: ways to solve the problem. *Problems of Modern Economy, 3*(55), 246-249.

Bierbrauer, F. J., & Boyer, P. C. (2016). Efficiency, Welfare, and Political Competition. *The Quarterly Journal of Economics, 131*(1), 461-518. https://doi.org/10.1093/qje/qjv033

Gagulina, N., Budagov, A., & Novikov, A. (2019). Institutional approach in research of transformations in the regional economy. *E3S Web of Conferences, 110,* 02108. https://doi.org/10.1051/e3sconf/201911002108

Gagulina, N., Samoylov, A., Novikov, A., & Yanova, E. (2020). Innovation-driven development and quality of living under conditions of digital economy. *E3S Web of Conferences, 157,* 04037. https://doi.org/10.1051/e3sconf/202015704037

Gringof, I., & Kleschenko, A. (2011). *The need for agricultural crops in agrometeorological conditions and hazardous weather conditions for agricultural production. Fundamentals of Agricultural Meteorology, I.* Obninsk: FSBI "RHMDRI".

Gringof, I., & Pavlova, V. (2013). *Fundamentals of Agricultural Meteorology. III. Part 1. Fundamentals of Agroclimatology. Part 2. Impact of climate change on ecosystems, agriculture and agricultural production.* FSBI "RHMDRI".

Novikov, A., & Zhulega, I. (2020). Modernization changes and economic stability of Russia during globalization of world economy. *SHS Web of Conferences № 74.* 05016. *The 19th International Scientific Conference Globalization and its Socio-Economic Consequences 2019 – Sustainability in the Global-Knowledge Economy*. https://doi.org/10.1051/shsconf/20207405016

Polevoy, A. (1992). *Agricultural Meteorology.* Hydrometeoizdat.

Russian Regions. (2020). Key features of the constituent entities of the Russian Federation. 2020: Statistic Handbook. Rosstat.

Seryakova, L. (1978). *Agrometeorology*. Hydrometeoizdat.

Zhurina, L., & Losev, A. (2012). *Agrometeorology.* KVADRO LLC.