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DEVELOPMENT OF GOVERNMENT REGULATION ON INVESTMENT ACTIVITIES IN AGRICULTURE OF UKRAINE⁶

The purpose of this study is to determine the main factors of state regulation that affect the efficiency of investment activities in agriculture of Ukraine. It is proved that the weakness of state regulation of investment activity in agriculture is the lack of a balanced long-term policy of economic development, which turns Ukraine into an agrarian state. The balance of payments deficit has been covered in recent years (2015–2019) due to exports of low value-added agricultural raw materials. Taking into account the fact that the world food market is constantly growing shortage of quality products, Ukraine has prospects to become a developed agro-industrial country in terms of stimulating investment in the processing of agricultural raw materials. Methodological tools for assessing the impact of government action on key indicators of investment activity in the agricultural sector of Ukraine have been developed. The level of impact of the effectiveness of state regulation with the use of such tools as financing of investment management bodies and financial incentives for investment development is the highest compared to the effectiveness of other instruments of state regulation. Rising government spending on investment management and financial assistance to farmers has a positive impact on the dynamics of return on investment in agriculture. The practical value of the developed methodological tools lies in the possibility of their use by managers of agricultural enterprises to forecast their condition, taking into account the influence of factors of state regulation related to ensuring the efficiency of investment activities in the agriculture of Ukraine. Given that forecasting is reduced to one resulting parameter, the proposed toolkit is easy to use. It should be used to justify regulatory decisions, in particular, on investment processes in agriculture.

Keywords: investment support; agriculture; investment efficiency; VAT refund; state budget; farmers; strategy

JEL: H70; Q10; Q14

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1. Introduction

Agriculture is one of the priority sectors for development in Ukraine. The products of this sphere are one of the main export items of the Ukrainian economy. Given its viability and importance, public authorities must ensure its development. The main measures to this end are the introduction of a favourable investment policy in the field of agriculture. In the turbulent economic environment caused by a number of geopolitical factors, the growing problem of food shortages caused by the war, the effects of the COVID-19 pandemic, changes in the environment, the issues of the government regulation of investment activity into new agricultural technologies and agricultural development are relevant. In view of this, the problem investigated in this article is the definition and assessment of the current state of state regulation of investment activities in Ukraine, its problems and prospects. The assumption of this study is that the level of state assistance in the field of investment in agriculture depends on the topics of its development. Issues of development and improvement of state regulation of investment activities, including in the field of agriculture, have become the subject of research by a number of authors.

The main aspects of the regulation of investments in the agricultural sector of the EU are shaped by the “Policy Framework for Investment in Agriculture” (Policy framework..., 2013). Analysing this document, we should underline the key role of private investments, which should be supported by regulators: “Private investment is essential if agriculture is to fulfil its vital function of contributing to economic development, poverty reduction and food security. Agricultural production needs to increase by at least 60 % over the next 40 years to meet the rising demand for food resulting from world population growth, higher income levels and lifestyle changes. Given the limited scope for net area expansion, agricultural growth will rely mainly on new increases in productivity, supported in particular by private investment in physical, human and knowledge capital. Agricultural investment can help contain upward pressure on food prices in the context of rising land and water scarcity, thereby enhancing global food security.

Undoubtedly, the investments are one of the key factors of economic growth, long-term and short-term capital investments, consisting of capital expenditures (capital investments); costs associated with the growth of working capital (during the expansion of production) or working capital in full, necessary to start production (during the creation of new production), as well as costs necessary to prepare an investment project (The Verkhovna Rada..., 2020). The essence of investments, their interpretation in the scientific literature and practical experience of investing show the significant potential of this economic tool in the processes of intensification of production, improving the efficiency of management and implementation of socioeconomic projects. Yu. Lupenko et al. (2017) believe that investment processes in agriculture have recently slowed down sharply due to the reduction of financial opportunities for investors and the state. Restoration of the positive dynamics of investment requires radical measures to increase the investment attractiveness of the industry and the fastest macroeconomic stabilisation in the country. It can be stated that given the current state of agriculture, the problem of intensifying investment activity remains relevant. This, in turn, will improve the state of logistics, contribute to the growth of production capacity and the degree of its use, will provide a social impact in rural areas.

T. Muluneh (2021) concentrated on digital aspects of agricultural development: the application of digital technologies (modern ICTs) has to transform the internal functioning of rural institutions, the delivery of agricultural goods and services, and the interaction between government and the rural public with enhanced transparency, accountability, regulation and contract enforcement, and active participation of all involved stakeholders aiming to ensure growth and development of the agricultural sector.

The main trends in governance of the agricultural sector in the age of globalisation are discussed in the book (Higgins, Lawrence, 2005). The impact of government policies on private R&D investment in agriculture is discussed in the article (Higgins, Lawrence, 2005). This study undertakes this research by examining the relationship between government policies and biotechnology research by agribusiness firms in China, using a unique survey dataset of 103 Chinese agribusiness firms in the chemical and seed industries. The results provide support for the argument that government policies can induce private investment in biotechnology R&D. This most basic policy change required to encourage R&D is government approval of new GM traits for cultivation and GM traits for consumption.

It should be noted that state regulation and development of investment activities in agriculture is an indirect influence of the state on socioeconomic processes through laws and regulations, implemented by supporting certain price, credit and tax instruments, export and import quotas, management projects initiatives stimulating, etc. Thus, the development of agriculture is ensured by the joint activities of all participants in this process: agricultural workers, investor contributions and the implementation of the regulatory function of public administration.

In addition, there are a number of economic, legal, financial, political, social negative factors that affect the investment climate of Ukraine's agriculture. In our opinion, the risk of foreign investment in agriculture in the field of state regulation should include corruption; unprotected property rights, raiding; centralisation of power, ie the inability of regions to compete in attracting investment; forcing business to cover the financial problems of the region under the pretext of its involvement in solving social issues; pressure on business from the authorities; unresolved issues of public-private partnership; frequent changes in non-compliance legislation; incompleteness of the legislative process and the impossibility of implementing the adopted laws (Chip, 2018).

A. Mykhailov (2010) focused on the use of various financial instruments for the formation of investment resources in agriculture. In particular, he found that the most common in recent years among domestic financial instruments were bank lending, forward procurement, agricultural receipts and leasing services. But he emphasises that the set of financial instruments differs depending on the size of agricultural enterprises, their affiliation to agricultural holdings. The difference in the possibilities of access and accumulation of investment resources of agricultural producers of different sizes is proved by other scientists (Swinnen, 2009; Graubner et al., 2020; Deng et al., 2019; Srour, 2018). Other, no less important factors hindering foreign investment in agriculture include political instability; unemployment; low qualification of graduates of management and marketing specialities; lack of time and financial resources to improve the skills of employees in enterprises; low level of foreign language proficiency of young people; weak infrastructure development; bad

ecological situation (Deng et al., 2019; Srour, 2018). However, according to L. Chip (2018), there are many other negative factors that reduce the investment attractiveness of the agricultural sector of Ukraine. First of all, they include the low level of protection of the rights of landowners and land users, insufficient content of the cadastral register and the register of property rights, a number of inconsistencies between them, adjustment of infrastructure, freight transportation. At present, Ukraine does not have a specially authorised central executive body in the field of investment activities. As rightly noted by O. Shatylo (2010), the main problem of state regulation of investment activities is the dispersion of powers between different government agencies in this area. Nowadays, without exaggeration, everyone and nobody are engaged in investment activity in Ukraine.

The results of the analysis of the main aspects and issues of the government regulation of the agricultural sphere are represented in the work (Polushkina et al., 2013). I. Bezpiata (2016) studied the peculiarities of attracting foreign investment in the agricultural sector of the economy. She considered the main factors that allow to form the preconditions for increasing the level of investment attractiveness of the regions of Ukraine. The author considers the implementation of European initiatives in the field of agricultural policy to be an important area of state support for the development of investments in the agricultural sector.

Studies (Dmytriieva, Sviatets, 2021; Honcharuk, Dziurakh, 2018; Dziurakh, 2019) present the effectiveness of filtration methods and the results of the analysis that can be used in the management and forecasting of long-term agricultural development of Ukraine. However, it is important when studying the development of agriculture in Ukraine to take into account the influence of public administration to improve the accuracy of forecasting.

Resuming this short literature review, it can be concluded, that foreign experience of government regulation of investment in agriculture is different in different countries, but the aim is, in general, the same – to support the investments, especially from foreign investors (globalisation and digitalisation supports this process). Also, given the above, there is reason to state that most of the analysed scientific papers are only fragmentarily devoted to the problems of state regulation of investment in agriculture and contain mainly theoretical rather than applied methodological recommendations to take into account factors which have an impact on attracting investment in agriculture.

2. Methodology

The purpose of this study is to determine the main factors of state regulation that affect the efficiency of investment activities in agriculture in Ukraine. The hypothesis of the study is that the growth of the favourable system of state regulation of agriculture in Ukraine should increase investment in this sector of the economy.

The methodological basis of the study were the methods of economic-statistical, correlation and regression analysis. They were used to compute the influence of the main government actions on the main indicators of the investment activity in the agricultural sector in Ukraine. The study period covers the interval from 2010 to 2019. This period was divided into three-

time intervals, each of which reflects a certain direction of public investment policy in agriculture:

- 2010-2013 – a period of relative stability, which was associated with the implementation of economic policy aimed at increasing exports to the markets of the CIS countries;
- 2014-2015 – a period of financial, economic and political crisis, characterised by a sharp decline in key indicators of socioeconomic development;
- 2016-2019 – post-crisis period of the gradual recovery of Ukraine's economy, its adaptation to new economic conditions.

In order to obtain a complete picture of the impact of instruments of state regulation on investment processes in agriculture, a factor analysis has been performed. To this end, it is necessary to identify the features of the impact of various instruments of state regulation on investment in the agricultural sector. We will perform the assessment using the method of correlation and regression analysis, because there are no direct linear relationships between the analysed indicators. The impact of economic instruments of state regulation on the volume of investment in agriculture was studied by the following indicators:

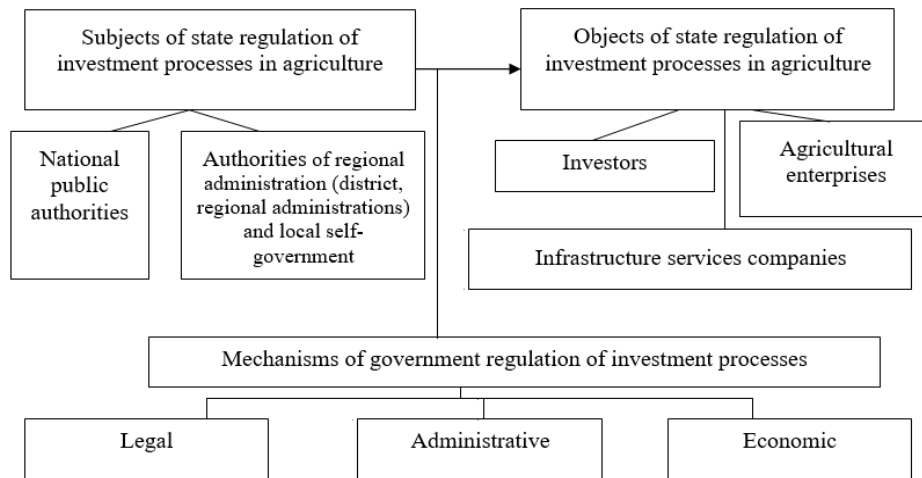
- state budget expenditures to support state regulators of the agricultural sector;
- the amount of the state budget for financial assistance to farmers;
- the amount of VAT refunds to farmers for exports;
- volumes of public procurement from agricultural enterprises.

3. Results and Discussion

State regulation and development of investment activities in agriculture are based on the general principles of development of the system of state influence on economic processes, taking into account the specifics of the development of individual countries and regions. Therefore, to determine the main determinants of the development of this process, it is necessary to explore specific factors that operate in specific conditions for the state. This includes a study of the legal, institutional and economic preconditions for the functioning of the agricultural sector, as well as the institutional and organisational foundations of state regulation of investment processes. Objective economic and geopolitical factors in the development of the agricultural sector create its investment attractiveness for potential domestic and foreign investors. Creating a positive investment climate and attracting domestic and foreign investment involves the formation of organisational, legislative, economic and information and analytical support for state regulation of investment activities in agriculture. First of all, it is expedient to consider the specifics of the formation of institutional support for state regulation in the field of investment processes stimulating agriculture. No single state authority that would comprehensively resolve the issue of state regulation of investment attraction is present in Ukraine now. Some functions of regulating investment processes, regardless of the sector of the economy, are divided between different

government organisations and institutions. Summarising the above, we can form a structural scheme of state regulation of investment activities in agriculture of Ukraine, which includes the main subjects, objects and mechanisms of state influence on the processes of investing in the agricultural sector (Figure 1). Previously identified subjects of state regulation of investment activities in agriculture include a set of national and regional public administration bodies.

Figure 1. Structural scheme of state regulation of investment activity in agriculture of Ukraine



Source: created by the authors on the basis of Gale & Gooch, 2018; Zoitovich, 2020; Wu, Li, 2020; Lindsay et al., 2021; Zakharin, 2021.

The objects of state regulation of investment processes in agriculture are directly the investors by themselves (private enterprises, international organisations, financial institutions), economic entities in the agricultural sector and infrastructure organisations (transport companies, state registrars, technical park maintenance companies, etc.).

The mechanisms of state regulation of investment processes can be divided into three major groups: legal, administrative and economic. The logic of the study requires a more detailed consideration of each of them. In particular, legal mechanisms are the regulation of the activities of participants in the investment process in the agricultural sector through the creation of a regulatory framework (codes, laws, orders, regulations, etc.).

Mechanisms of direct influence on the participants of the investment process are administrative. Such influence implies the application of instructions, orders and directives of higher state authorities in order to regulate the activities of both investors and agricultural enterprises by themselves. The administrative mechanisms of state influence on investment incentives include the definition of strategic development goals and their reflection in indicative and other plans, target programs; long-term government orders and contracts for

the supply of certain types of agricultural products; state support of agricultural production development programs (Shokhnekh et al., 2020).

Economic mechanisms of state regulation of investment processes involve the use of financial leverage to influence the activities of investors and farmers. These primarily include the financing of expenditures for the maintenance of national institutions that carry out (or are directly related) the management of the investment process and the allocation of funds for the implementation of public and public-private targeted programs and projects.

State regulation of investment processes involves expenditures from the state budget to finance state-targeted programs in the field of investment development of agricultural enterprises. Changes in some methodological approaches to the state regulation of investment processes in agriculture are due to the need for various tactical tasks, and this is the reason for a public administration response to all the peculiarities of the economy and the agricultural sector in particular. In accordance with the basic provisions of public financial policy, the states carry out large-scale distribution and redistribution of GDP through the economic mechanism of influence.

Obtaining objective results of the assessment should provide for the levelling of the impact of the devaluation (UAH) in 2014-2015. Therefore, all indicators used for regression analysis are reduced to the currency equivalent (USD) at the average annual rate of the NBU. The initial data for evaluation and symbols of indicators are provided in Table 1.

Table 1. Indicators for the analysis of the dependence of the volume of investments in agriculture on the use of various instruments of state regulation in 2010-2019, mln USD

Indicators	Legend	Years									
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Investments in agriculture (capital and foreign direct)	Y	2066	2791	3083	2996	2356	1833	2429	2974	2929	2709
Expenditures to support state regulators of the agricultural sector	x ₁	-	12	16	9	7	5	6	8	7	8
Financial assistance to farmers	x ₂	-	152	129	165	64	31	14	190	167	172
VAT refund on exports	x ₃	847	895	954	1071	696	455	595	741	578	575
Public procurement of agricultural products	x ₄	4170	3600	3256	1768	1409	596	1117	1020	1061	1131

Source: calculated by the authors according to the State Statistics Service of Ukraine (Indicators of enterprise..., 2019).

The international software product Stata was used to calculate regression. The results of the regression calculation in the Stata program were normalised (a natural logarithm was found for the values for each indicator for greater objectivity of the evaluation results). The results of starting regressions are provided in Table 2.

The performed regression analysis gives grounds to assert a high density of the relationship between the indicators in the framework of multiple regression. The value of R² is 0.8974 and is close to 1. This indicates that the relationship between the volume of investment in agriculture and instruments of government regulation is high. In this case, based on the data

of the Fisher test (F-test), it is also possible to conclude that there is a stable relationship between the indicators, as its actual value is 4.37, which exceeds the minimum allowable value (4.2).

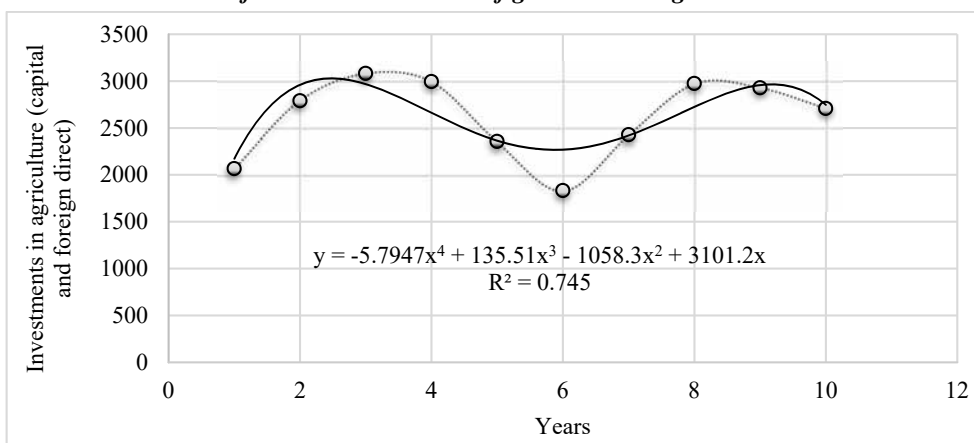
Table 2. The results of the regression analysis of the volume of investment in agriculture dependence on the use of various instruments of state regulation in 2010-2019

Regression parametres	Regression variations				
	Plural	Y from X ₁	Y from X ₂	Y from X ₃	Y from X ₄
R ²	0.8974	0.6526	0.5403	0.5463	0.1136
Fisher criteria	4.37 F _{min} = 4.2	9.39 F _{min} = 1.6	5.88 F _{min} = 1.6	7.22 F _{min} = 1.6	0.77 F _{min} = 1.6
Coefficients for variables, b ¹ – b ⁴	X ₁ : b ¹ = 0.348 X ₂ : b ² = -0.039 X ₃ : b ³ = 0.663 X ₄ : b ⁴ = -0.215	X ₁ : b ¹ = 0.359	X ₂ : b ² = 0.137	X ₃ : b ³ = 0.508	X ₄ : b ⁴ = 0.092
Probability of error, P ¹ – P ⁴	X ₁ : P ¹ = 0.360 X ₂ : P ² = 0.676 X ₃ : P ³ = 0.197 X ₄ : P ⁴ = 0.397	X ₁ : P ¹ = 0.028	X ₂ : P ² = 0.060	X ₃ : P ³ = 0.036	X ₄ : P ⁴ = 0.414

Source: calculated by the authors according to the State Statistics Service of Ukraine (Indicators of enterprise..., 2019).

It is important to pay attention to the obtained values of the coefficients for each variable. They express the value of the coefficient of elasticity of investment under the influence of each instrument of government regulation. As shown in Table 2 and Figure 2 data, in general, the growth of expenditures to support the state regulatory authorities of the agricultural sector had a positive effect on the increase in investment within both multiple and pairwise regression (in x₁). There was a directly proportional relationship between the indicators.

Figure 2. Trend analysis of the dependence of agriculture investment volume on the use of various instruments of government regulation



Source: built by the authors.

It can also be stated that the state financial support of farmers had an ambiguous nature of impact on the volume of investments. Within the multiple regression, the growth of financial support led to a decrease in investment (inversely proportional dependence), and within the pairwise regression (in x_2), the dependence was directly proportional. This can be explained as follows:

- 1) state financial support of the agricultural sector itself (in the absence of the influence of other factors) is an instrument of state regulation, which has a positive effect on investment in agriculture;
- 2) the positive effects of state financial support are offset by the influence of other factors, which, as it turned out as a result of the launch of regressions, had a greater degree of influence. That is, in this aspect, the state policy of VAT refunds and public procurement in 2010–2019 offset the positive impact of state financial assistance. Based on this, it is possible to make assumptions about the insufficient efficiency of the use of the above instruments of state regulation of investment activity in the agriculture of Ukraine.

VAT refunds on exports had a positive effect on investment in agriculture, which confirms the results of multiple and pairwise (in x_3) regressions. Instead, the impact of public procurement is quite controversial. The results of multiple and pairwise (in x_4) regressions show that the positive effects of public procurement are offset by the influence of other factors. That is, the implementation of public procurement from farmers, together with the use of other instruments of state regulation of investment in agriculture, does not give significant positive consequences.

Based on the results of the study of the main economic instruments of investment activity state regulation in agriculture of Ukraine, we found the following:

1. The number of agricultural enterprises has a stable upward trend. Therefore, the policy of state regulation in the direction of increasing the level of taxation of economic entities in agriculture did not have a significant impact compared to other sectors of the economy. The dynamics of the number of agricultural enterprises largely depended on macroeconomic dynamics. The share of agricultural production has constantly been increasing, which positively characterises the reforms carried out in the agricultural sector over the past 9 years.
2. The reduction in investment occurred due to the withdrawal of capital from Ukraine during the economic crisis. During 2016–2019, the opposite trend was observed. Characterising the dynamics of the share of investment in GDP and gross investment in the economy of Ukraine, it should be noted that there is a tendency for its gradual growth in 2015–2019. The share of investment in GDP generated in the agricultural sector increased significantly between 2015 and 2019. This trend can be explained by the fact that after the economic crisis, Ukraine began to export more agricultural raw materials to world markets, reducing the share of high value-added products. Therefore, the investment attractiveness of agriculture in the new economic conditions has become much higher compared to other sectors of the economy.
3. The weakness of state regulation of investment activity in agriculture is the lack of a balanced long-term policy of economic development, which turns Ukraine into an

agrarian state. The balance of payments deficit has been covered in recent years (2015-2019) due to exports of low value-added agricultural raw materials. Taking into account the fact that the world food market is constantly growing shortage of quality products, Ukraine has prospects to become a developed agro-industrial country in terms of stimulating investment in the processing of agricultural raw materials.

4. The pace of dynamics of foreign direct investment in agriculture is sharper than in the economy as a whole. This may indicate that foreign direct investment in the agricultural sector is quite resilient to changing economic conditions and the political situation in Ukraine, and therefore agriculture largely needs economic stabilisation and a balanced policy of state regulation.
5. During 2010-2019, the state policy of regulating investment activity in agriculture showed less interest in the fundamental and infrastructural principles of agricultural sector development. Instead, the main efforts of public authorities in recent years have begun to focus on targeted subsidy funding programs for agricultural producers. Measures of state regulation of investment activity in agriculture did not contribute to increasing the economic potential of agricultural enterprises. Instead, the indicators of production capacity and the book value of biological assets decreased, thus reducing the level of investment attractiveness of the agricultural sector.
6. The growth of expenditures to support the state regulatory authorities of the agricultural sector had a positive effect on the increase in investment within both multiple and pairwise regression (in x_1). There was a directly proportional relationship between the indicators. The state financial support of farmers had an ambiguous nature of impact on the volume of investments.
7. The state policy of VAT and public procurement reimbursement in 2010-2019 offset the positive impact of state financial assistance. Based on this, it is possible to make assumptions about the inefficiency of the use of the above instruments of state regulation of investment activity in agriculture. In turn, the implementation of public procurement by farmers, compared to the use of other instruments of state regulation of investment activities in agriculture, has no significant positive consequences.

In order to deepen the analysis of the effectiveness of state regulation of investment activities in agriculture, a correlation and regression analysis of the relationship between the following indicators:

- the resulting indicator: investment in agriculture (capital and foreign direct);
- factor indicators: these are the indicators shown further.

The initial data for the construction of the regression model are provided in Table 3.

The results of the regression calculation in the Stata program. All data are presented in a panel view. The results of starting regressions are provided in Table 4.

Table 3. Indicators for the analysis of the dependence of the return on investment in agriculture on the effectiveness of their state regulation in 2012-2019, mln USD

Indicators	Legend	Year							
		2012	2013	2014	2015	2016	2017	2018	2019
Investments in agriculture (capital and foreign direct)	Y	3083	2996	2356	1833	2429	2974	2929	2709
Investment efficiency ratio	x ₁	0.82	1.88	0.99	1.09	1.08	0.87	1.12	0.90
Coefficient of efficiency of financial stimulation of investment development of agrarians	x ₂	1.30	1.14	0.93	0.91	1.56	1.44	1.16	1.09
Coefficient of investment efficiency of VAT refund to farmers	x ₃	1.04	0.87	1.21	1.19	1.01	0.98	1.26	0.93
Coefficient of investment efficiency of public procurement	x ₄	1.28	1.24	1.20	0.82	3.09	0.66	0.85	0.96

Source: calculated by the authors according to the State Statistics Service of Ukraine (Indicators of enterprise..., 2019).

Table 4. The results of the regression analysis of the dependence of the return on investment in agriculture on the effectiveness of their state regulation

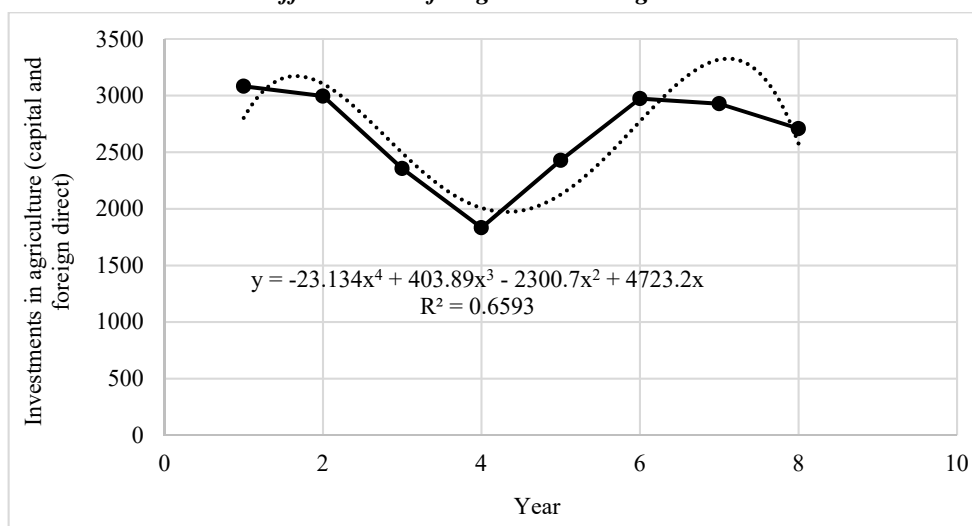
Regression parameters	Regression variations				
	Plural	Y from X ₁	Y from X ₂	Y from X ₃	Y from X ₄
R ²	0.5252	0.4069	0.3587	0.3056	0.2680
Fisher criteria	19.92 F _{min} = 4.22	17.15 F _{min} = 1.25	13.98 F _{min} = 1.25	11.00 F _{min} = 1.25	9.15 F _{min} = 1.25
Coefficients for variables b ¹ – b ⁴	X ₁ : b ¹ = 0.918 X ₂ : b ² = 1.229 X ₃ : b ³ = 4.140 X ₄ : b ⁴ = -0.126	X ₁ : b ¹ = 0.995	X ₂ : b ² = 0.405	X ₃ : b ³ = 2.501	X ₄ : b ⁴ = 0.261
Probability of error p ¹ – p ⁴	X ₁ : P ¹ = 0.356 X ₂ : P ² = 0.236 X ₃ : P ³ = 0.345 X ₄ : P ⁴ = 0.582	X ₁ : P ¹ = 0.000	X ₂ : P ² = 0.001	X ₃ : P ³ = 0.003	X ₄ : P ⁴ = 0.006

Source: developed by the authors according to the State Statistics Service of Ukraine (Indicators of enterprise..., 2019).

The performed regression analysis gives grounds to indicate the average level of probability of the relationship between the indicators in the framework of multiple regression. The value of R² is 0.5252. This indicates that the relationship between the level of return on investment in agriculture and the effectiveness of certain means of state regulation of investment activity is high. In this case, based on the data of Fisher's criterion (F-criterion), it is also possible to conclude that there is a stable relationship between the indicators, as its actual value is 19.92, which exceeds the minimum allowable value (4.22).

Let's analyse the obtained values of the coefficients for each variable. As shown in Table 4 and Figure 3 data, the level of impact of the effectiveness of state regulation using such means as financing of investment management bodies and financial incentives for investment development, is the highest compared to the effectiveness of other instruments of state regulation. Rising government spending on investment management and financial assistance to farmers has a positive impact on the dynamics of return on investment in agriculture.

Figure 3. Trend analysis of the dependence of the agriculture investment return on the effectiveness of its government regulation



Source: built by the authors.

According to the results of the values of multiple regression coefficients, we can say that the decline in investment efficiency of public procurement, in general, had a negative impact on the level of return on investment in agriculture. This may indicate the limited use of public procurement to stimulate investment processes in agriculture in the current macroeconomic dynamics.

However, a significant risk in this direction is the high level of corruption in public authorities (Table 5). The problem of corruption in Ukraine is a systemic phenomenon that is very difficult to fight. Overcoming it requires a significant investment of resources and time. Foreign investors understand this situation and therefore are often ready to work in Ukraine with the expectation of improving the business climate in the future. Positive incentives for them in this direction are such strengths of the agricultural sector of Ukraine as favourable natural and climatic conditions, skilled labour resources, a capacious internal market and a high level of openness of the national economy.

Thus the effectiveness of state regulation and development of investment activities in agriculture was assessed. Indicators of the ratio (results of agricultural enterprises to investment and public financial assistance to farmers) have been declining during 2015–2019. This indicates a decrease in the level of effectiveness of public investment policy in agriculture. According to the results of correlation and regression analysis, it can be stated that the relationship between the level of profitability of investment in agriculture and the effectiveness of certain means of state regulation of investment activity is high. The level of impact of the effectiveness of state regulation using such means as financing of investment management bodies and financial incentives for investment development is the highest compared to the effectiveness of other instruments of state regulation. Rising government

spending on investment management and financial assistance to farmers has a positive impact on the dynamics of return on investment in agriculture.

Table 5. The main areas of use of opportunities and counteraction to threats in the field of state regulation and development of investment activities in agriculture

	STRENGTHS (S)	WEAKNESSES (W)
OPPORTUNITIES (O)	SO1. Further improvement of state policy in the field of transport infrastructure regulation. SO2. State promotion of agro-industrial clusters. SO3. Improving the mechanisms of state assistance to innovative development.	WO1. Formation of mechanisms for attracting investments in transport infrastructure. WO2 Promoting the development of state energy conservation policy, in particular green technologies in agriculture. WO3. Ensuring the sustainability of macroeconomic development and opportunities for financial assistance to the agricultural sector.
THREATS (T)	ST1. Resumption of the international program of cooperation with the IMF public debt restructuring. This is a necessary and exclusive condition for foreign investors. ST2. Intensification of work on the full functioning of the agricultural land market. ST3. Resolving the full-scale Russian military aggression on favourable terms for Ukraine.	WT1. Counteraction to corruption in public authorities further fight against corruption. WT2. Development of mechanisms to stimulate the export of agricultural raw materials, in particular the restoration of the VAT refund regime for exports. WT3. Strengthening reforms in the field of social policy in rural areas, promoting the formation of demographic potential in rural areas.

Source: Systematised by the authors on the basis of sources (Eze et al., 2020; Morkunas et al., 2018; UNCTAD, 2019; Karkovska, 2009; Oleksiv & Podolchak, 2005; Sumets et al., 2022).

4. Conclusion

Thus, summarising the results of the study, the effectiveness of state regulation of investment activities in agriculture was assessed. Indicators of the ratio (performance of agricultural enterprises to indicators of investment and public financial assistance to farmers) have been declining during 2015-2019. This indicates a decrease in the level of efficiency of public investment policy in agriculture.

Taking into account the main economic indicators, the legitimacy of the use of a number of relevant efficiency ratios is substantiated. The overall efficiency ratio of state regulation of investment activity in agriculture is defined as the ratio of the growth rate of investment in agriculture to the growth rate of budget expenditures to finance government agencies that regulate investment processes. If the value of this indicator is less than 1, it indicates a declining dynamics of the efficiency of investment regulation, and conversely, if the value of the indicator exceeds 1, the dynamics of the efficiency of state regulation is ascending. In this context, in 2017-2019, the level of efficiency of investment regulation decreased to 0.870-0.897, which indicates a decrease in the return of state resources, at the expense of which the bodies of state management of investment processes in agriculture were financed.

According to the results of correlation and regression analysis, we can say that the relationship between the level of return on investment in agriculture and the effectiveness of certain means of state regulation of investment activity is high. The level of impact of the effectiveness of state regulation with the use of such tools as financing of investment

management bodies and financial incentives for investment development is the highest compared to the effectiveness of other instruments of state regulation. Rising government spending on investment management and financial assistance to farmers has a positive impact on the dynamics of return on investment in agriculture.

A promising area for improving state regulation of investment in agriculture should be the formation of a single central body with authority to organise and control the implementation of the state strategy for agricultural development, as well as coordinate the work of various ministries and agencies responsible for attracting foreign investment.

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