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An Econometric Study of the Impact of Government Support on the Development of Agricultural Investment In Iraq during the period (1995–2022)

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I. Abstract:

This study conducts an econometric analysis of the impact of government support on the development of agricultural investment in Iraq during the time period (1995-2022), in light of the structural and financial challenges facing the agricultural sector, which negatively affected its contribute to food security and economic development. The problem stems from the weak efficiency of government support policies and the lack of clarity regarding their actual effectiveness in stimulating agricultural investment in the medium and long term. The study aims to examine the nature of the relationship between government support directed to the agricultural sector and agricultural investment, and to assess its role in promoting sustainable agricultural growth. The study is based on key hypotheses asserting the existence of a statistically significant positive relationship between government support and agricultural investment, in addition to the significant effect of selected macroeconomic variables such as agricultural GDP and public agricultural expenditure. An econometric methodology was adopted using annual time-series data, employing linear regression models, unit root tests and cointegration analysis.

The results indicate that a 1% increase in government support leads to an increase in agricultural investment of approximately (0.35–0.45%). Moreover, the finding confirm the existence of a long-term equilibrium relationship among the study variables. However, the results also reveal inefficiencies in the allocation of support in certain years due to economic volatility and institutional instability. Accordingly, the study recommends restructuring agricultural support policies by directing them towards productive and technological investment, enhancing transparency, and ensuring the sustainability of agricultural spending, thereby contributing to achieving sustainable agricultural development and reducing dependence on food imports.

Keywords: Government support, Agricultural investment, Econometric analysis, Agricultural Development, Iraq, Agricultural policies, Economic sustainability.

General framework of the research

The agricultural sector is fundamental to the national economy, essential for ensuring food security, providing employment, and contributing to the gross domestic product, as well as fostering social and economic stability. Governments prioritize this sector by implementing diverse support programs that serve as essential instruments of economic strategy, designed to enhance agricultural investment and boost production .This support is embodied in multiple forms, including direct financial support to farmers, reduction in the prices of production inputs, provision of tax exemptions, as well as making agricultural loans available on preferential terms.

The influence of these supportive policies is not uniformly consistent, as their efficacy fluctuates based on economic and institutional contexts, the efficiency of resource management, the characteristics of the existing investment climate, and temporal changes that may impact the trajectory and sustainability of support .Hence, there is a need to conduct an in-depth standard study to measure the impact of government support on agricultural investment development, and to analyze its relationship with relevant economic variables, in order to contribute to evaluating the efficiency of support policies and directing them towards achieving sustainable agricultural development.

1. Research Problem: Despite the allocation of substantial funds to support the agricultural sector, the level of agricultural investment does not always reflect the scale of this support. The research problem is encapsulated in the following question:

To what extent does government support influence the development of agricultural investment?

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2. The significance of the research: The significance of the research is in elucidating the function of governmental assistance in fostering agricultural investment and offering a benchmark for decision-makers regarding the efficacy of agricultural support policies. The research enhances and bolsters the economic literature pertaining to agricultural policies, while also assisting relevant authorities in reallocating assistance to the most productive initiatives.

3. Research Objectives: This research aims to:

•Analyze the evolution of government support and agricultural investment during the study period.

•Measure the impact of government support on agricultural investment using an econometric model.

•Test the significance of the relationship between government support and agricultural investment.

•Provide recommendations for improving agricultural support policies.

4. Research Hypotheses: The research hypotheses are based on the following three points:

•There is a statistically significant positive relationship between government support and agricultural investment.

•Government support has a significant impact on the development of agricultural investment.

•The degree of impact of government support varies according to the accompanying economic variables.

5. Research Methodology: The researcher employed a descriptive-analytical approach to examine the evolution of governmental support and agricultural investment, alongside an econometric method to estimate the economic model and assess the impact of government support, utilising statistical techniques pertinent to stability tests, estimation, and significance testing.

.6Research limits: The time limits of the research were determined based on data for the period (1995–2022), and the spatial limits were (Iraq), while the sectoral limits were (the agricultural sector) only.

.7Research Hypothesis: The study's hypothetical framework reflects the analytical framework upon which it is based in measuring the impact of government support on agricultural investment development, by defining the nature of the relationships between the independent and dependent variables. Government support represents the main independent variable in the study, which is assumed to influence agricultural investment development, the dependent variable, either directly or indirectly through various support mechanisms. In the hypothetical situation, government support delineates three primary explanatory variables, signifying the most significant avenues of state action in the agricultural sector. The initial variable is agricultural loans (CR), which facilitate essential financing for farmers and agricultural investors, enabling them to enhance production activities and use contemporary technology, hence augmenting the amount of agricultural investment. The second variable is direct financial subsidies (GS), encompassing cash assistance or support for agricultural inputs, aimed at reducing production costs, enhancing anticipated profitability, and consequently promoting investment.

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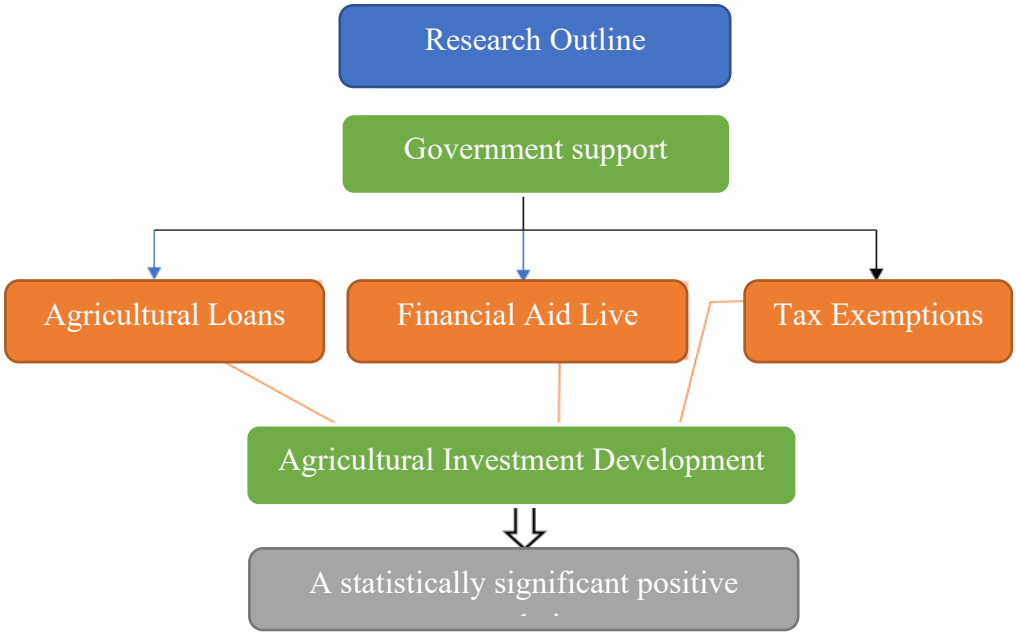

Figure 1. Hypothetical study plan.

Source: Prepared by the researcher.

Second: The conceptual framework for government support and agricultural investment, and previous studies:

The theoretical framework is an essential element of economic research, offering the conceptual and theoretical underpinnings that elucidate the links among the variables being examined. It facilitates the formulation of hypotheses and the systematic and scientific analysis of outcomes. The theoretical framework of the paper examines the influence of government subsidies on the development of agricultural investment, elucidating essential ideas associated with government subsidies, agricultural investment, and economic development. It also examines the principal economic theories that have analysed the state's role in bolstering productive sectors. This framework elucidates the methods via which government subsidies promote and augment the efficiency of agricultural investment, hence bolstering the econometric and applied analysis of the study.

1. The Notion of Governance Agricultural Support: Government agricultural support refers to a collection of financial and regulatory policies implemented by the state to bolster the agricultural sector via direct or indirect subsidies, including subsidies for agricultural inputs, pricing, concessional loans, and tax exemptions. This support seeks to augment agricultural output, attain food security, optimise resource utilisation efficiency, and encourage investment in agricultural endeavours. Government agricultural support refers to a collection of financial and service-oriented assistance offered by governments to farmers and the agricultural sector to attain economic and social goals, including stabilising farmer incomes, enhancing food security, lowering production costs, and increasing the competitiveness of domestic products against imports .(Heyl et al: 2022) Subsidies take many forms, including direct payments, input price subsidies (fertilizers, seeds, fuel), soft loans, and the provision of infrastructure and services. They are material supplies provided by the government to reduce the prices of goods, either for the benefit of industry or the consumer. In many societies, subsidies are considered taboo, and their absence or reduction threatens to ignite public unrest. Among the most important subsidized goods are flour, sugar, milk, housing, electricity, and fuel. Subsidies for fuel, in particular, have increased significantly in the new millennium (Kniaz et al: 2023)

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Table 1. The Evolution of the Concept of Government Support in Agricultural Economic Thought

Main Objective	Concept of Government Support	The Economic School.
Correct market distortions.	Limited intervention.	Classical
Stimulate investment and production.	Active intervention.	Keynesian
Achieve food security.	Targeted support.	Institutional
Promote sustainable investment.	Active support.	Agricultural Development

Source: Prepared by the researcher.

The table provides an illustration of the development of the idea of government support in agricultural economic thought across a variety of economic schools. It demonstrates how the concept of government support shifted from a limited role in the classical school to a more active role in the Keynesian school and modern development theories. These theories emphasise the significance of support in achieving food security and sustainable development, as well as in stimulating agricultural investment.

The main objectives of government agricultural support are to ensure food security by increasing the production of staple crops (wheat, rice) to reduce dependence on imports, stabilize farmers' incomes, guarantee profit margins for farmers, and protect them from market fluctuations, as well as reducing production costs by subsidizing inputs to make them affordable for farmers, particularly smallholders; protecting producers and consumers by supporting local products against foreign competition; supporting commodity prices for consumers; and encouraging rural development through the sustainability of agricultural projects and preventing rural-to-urban migration(Ciaian et al: 2021: 20)

.2The Meaning of Agricultural Investment: Agricultural investment is the process of allocating financial, human, and technological resources to a variety of agricultural activities, such as the production of crops and livestock, as well as industries that process agricultural products, with the intention of increasing production capacity and generating economic returns that are sustainable(Gernego et al: 2022: 188). Agricultural investment is one of the most important pillars of economic development, given its significant role in creating jobs, ensuring food security, and reducing the food gap. Agricultural investment is also defined as the process of directing capital and human resources toward agricultural activities (crops, livestock farming, forestry) with the aim of generating profit, diversifying investment portfolios, and increasing food productivity. It includes direct investment in land and equipment or indirect investment through agricultural exchange-traded funds (ETFs) or agricultural commodities, while taking into account climate and economic risks to ensure viable returns .The term "agricultural output" refers to the quantity of agricultural products that are produced on agricultural land by employing a particular quantity of agricultural inputs. These inputs include things like seeds, agricultural machinery and equipment, water facilities, fertilisers, pesticides, labour, and other general expenses (Svinous et al: 2021: 234)

3. The Importance of Government Support in Agricultural Investment Development: Government support plays a pivotal role in creating a favorable investment environment for the agricultural sector, particularly in developing countries that face high production costs and limited financing. Such support helps reduce the risks of agricultural investment, improve the profitability of agricultural projects, and encourage farmers and investors to adopt modern technologies .(Mishra: 2024: 1-10) Other benefits of government assistance include the correction of market failures, the maintenance of stable agricultural revenue, and the promotion of long-term investment. Furthermore, government support is essential for the development of agricultural investment because it enhances food security, reduces production costs, and promotes sustainability and competition, provides infrastructure, and supports innovation, thereby protecting the sector from the decline of agricultural

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activities, reducing dependence on imports, achieving sustainable development, creating jobs, and maintaining social and economic stability .(Tian: 2023: 708)

4. Types of Government Agricultural Support: Government agricultural support takes various forms, as illustrated in the figure below:

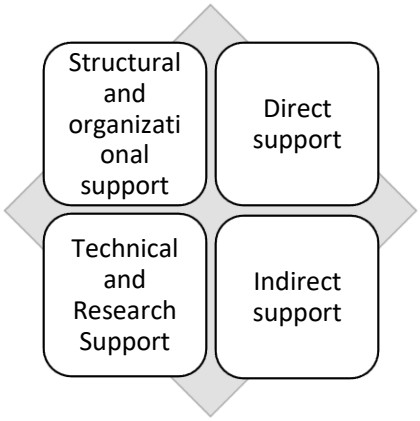

Figure 2. Forms of Government Agricultural Support

Source: Prepared by the researcher.

- Direct support: Direct support consists of providing direct cash subsidies to farmers, supporting the pricing of agricultural products, and distributing supplies at subsidised prices. Some examples of direct support include seeds, fertilisers, and electricity.
- Indirect support: Indirect support takes the form of providing low-interest agricultural loans, tax exemptions, investment in agricultural infrastructure, and spending on agricultural research and extension services, all of which have a positive impact on the agricultural investment climate .(Deveshwar & Panwar: 2024: 393)
- The provision of agricultural guidance and the transfer of modern agricultural technologies that assist farmers in increasing their productivity is included in the technical and research support of the organisation .(Sha et al: 2024: 1-18)
- Structural and regulatory support: through the protection of domestic products and the imposition of tariffs on imports, or the enactment of laws to protect domestic products from foreign competition; the provision of infrastructure and the development of irrigation, storage, and marketing networks; as well as the enactment of laws to develop the banking sector and support agricultural investment.

Table 2. Types of Government Agricultural Support and Their Impact on Investment

Expected Outcomes	Mechanism of Economic Impact	Type of Support
Increased investment.	Increase in capital.	Direct Financial Support
Improved profitability.	Cost reduction.	Input Support
Reduced risk.	Price stability.	Price Support
Business expansion.	Improved liquidity.	Direct Loans

Source: Prepared by the researcher.

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The table provides an overview of the many forms of government assistance for agriculture and the ways in which these aspects impact agricultural investment. Input support and price support help decrease production risks and encourage investors to grow their agricultural activities. Financial assistance and subsidised loans help enhance financing capacity, while input support and price support help increase financing capacity.

5. Economic theories explaining the relationship between government subsidies and agricultural investment: Economic theories explain the relationship between government subsidies and agricultural investment through various mechanisms, such as the theory of supply and demand (increased production and lower prices), and direct and indirect effects (subsidies for inputs and infrastructure), with a focus on achieving food security and economic and social stability. The effects include stimulating private investment, supporting the competitiveness of local products, and developing related agricultural industries, while taking into account the role of government investment spending in improving agricultural infrastructure, in accordance with the principles of agricultural economics. (Oanh: 2024)

- Keynesian theory: According to Keynesian theory, the intervention of the government in the form of expenditure and subsidies helps to promote aggregate demand, which in turn helps to boost investment, particularly in essential industries such as agriculture.
- Theory of Economic Development: This theory emphasizes the role of the state in supporting strategic productive sectors to achieve economic development, and agriculture is considered one of the sectors that requires ongoing government support to ensure the sustainability of investment in it. (Gomina et al: 2024: 725)

This theory proposes that agricultural markets are susceptible to price volatility and climate risks, which justifies government intervention through subsidies in order to correct market distortions and stimulate investment. The theory is known as the theory of market failure.

6. The Relationship Between Government Support and Agricultural Investment Development:

Economic literature indicates that government support has a positive impact on agricultural investment development by improving expected returns, reducing uncertainty, and providing the necessary financing to expand production activities. (Lan et al., 2025, p. 492) In addition, how well this impact works depends on how well the support programmes are designed and how much they focus on productive investment instead of helping consumers. Some see this as a good and helpful relationship. Government support, through things like financing, infrastructure, modern technologies, supportive laws, and protection of local products, can encourage both private and public investment, boost productivity, ensure food security, and create jobs, all of which can help agriculture grow in a sustainable way. The table below shows the theoretical ways that government support affects agricultural investment. These include higher income, lower costs, and lower risks, which all make the investment environment better and encourage people to invest more in the agricultural sector. (Pickson et al.: 2025: 118)

Table 3. Theoretical channels through which government support is transmitted to agricultural investment

Financing Channel	Risk Channel	Cost Channel	Revenue Stream	Channel
Facilitating Access to Credit	Reducing Uncertainty	Reducing Production Costs	Increasing Producers' Income	Theoretical Interpretation

Source: Prepared by the researcher.

The following table highlights the theoretical differences between countries with high and low levels of government support in the agricultural sector, showing that higher levels of support contribute to increased investment and greater production stability, thereby enhancing the sector's attractiveness to private investment.

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Table 4. Comparison of Government Support and Agricultural Investment in Developing Countries

Low support	High support	Scope
Limited	Relatively high	Investment Size
Unstable	High	Production Stability
Weakest	Highest	Attracting Private Investment

Source: Prepared by the researcher.

It is clear from the theoretical presentation that government support is a fundamental tool for the development of agricultural investment, by mitigating risks and stimulating agricultural capital. This constitutes the scientific framework upon which the statistical analysis in the applied chapter is based, which will rely on actual official data to accurately measure the impact of government support on agricultural investment.

7. Previous Studies:

Recent studies have examined the relationship between government support and agricultural investment and development from various perspectives. In an analytical study conducted in Egypt, government support in the form of loans and scientific research programs was found to have a significant impact on the value added of the agricultural sector, reflecting the importance of government spending directed toward agriculture. The study also used FMOLS to test the impact of government spending, loans, and support on the value added of the agricultural sector, and found a significant impact of government support programs on agricultural production (Sawy: 2025) .An ARDL analysis research in Iraq indicated that investment programmes and agricultural loans helped rice production, especially in the short run. It also showed how loans and investment policies affect rice output in Iraq and confirmed that financial help has a positive effect in the near run. (Istibraq & Majeed, 2025). In the context of developing nations, a study on global agricultural assistance (green subsidies) validated the presence of a long-term complementary link between agricultural support and agricultural GDP. The study also showed that green support and agricultural GDP work well together in both the short and long run. This shows how support might affect agricultural productivity in underdeveloped countries. (Siddiq et al: 2022) Other studies in China have shown that government financial support enhances the integration of rural sectors in agriculture and stimulates agricultural development. The study indicates that government financial support enhances the integration of rural sectors in China by improving infrastructure and expanding value added, thereby supporting comprehensive agricultural development (Ge et al., 2024) , while studies in India indicated increased allocations without a clear, lasting direct impact. The results of the study in India suggest increased government spending and support, yet no clear direct impact on agricultural growth despite the increase in allocations (Rashmi & Anusha: 2025). Turning to Algeria, the results showed that continuous government support for farmers significantly influences the country's agricultural economic growth in the long term. ARDL was used to determine the relationship between government support and agricultural economic growth, confirming the impact of support in the Algerian context (Sahanin & Boudir: 2025) .There has been an increase in the income of farmers over the long term, according to research that has been conducted on agricultural lending and financial support. According to the findings of the study, there is a positive correlation between the financial support provided by the government to the agricultural sector and a rise in the income of farmers over the long term, although there are distinct regional variances. (Trusova et al: 2021) ‹The amount of money that the government spends on human capital has been demonstrated to have a correlation with the amount of agricultural labour that is produced. A long-term association between government spending on education and health and agricultural labour productivity in Iraq has been proven by research. This relationship reflects an indirect impact of agricultural support policies. In general, these studies emphasise the significance of government financial support and its role in promoting agricultural investment and achieving sustainable agricultural development. However, the results of these studies vary depending on the methodology used, the quality of the data, and the institutional environment of each country.

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As for the research gap, despite the numerous studies that have addressed the impact of government support on the agricultural sector, most of them have focused on measuring the effect of support on agricultural production or agricultural growth in general, while neglecting the investment dimension as a key channel for achieving sustainable agricultural development. Furthermore, the majority of previous studies relied on aggregate or cross-sectional indicators, without delving into an analysis of the long-term statistical relationship between government support and agricultural investment development using appropriate time-series models .Moreover, there exists a scarcity of works that have performed a comprehensive empirical investigation of a singular country utilising contemporary real-world data. Consequently, this study aims to address this deficiency by conducting a direct econometric analysis of the influence of government support on the development of agricultural investment, utilising real-time data and suitable econometric models, thereby introducing a novel analytical perspective to the agricultural economic literature.

Third: An Econometric Analysis of the Impact of Government Subsidies on Agricultural Investment Growth in Iraq (1995–2023).

This section aims to analyze the econometric impact of government agricultural subsidies on the development of agricultural investment in Iraq for the period 1995–2023, using actual data from reliable international sources. This analysis uses econometric tools to test the proposed relationship between government support (whether direct or indirect) and agricultural investment, while controlling for relevant variables.

1. Data Sources and Description: We will use official, verified economic data, the most important of which are:

- Value Added in Agriculture, recorded in U.S. dollars, represents the value of agricultural production of goods and services in the Iraqi economy. Data available on the World Bank Index shows an increase in agricultural value added to approximately $9.49 billion by 2024 .
- The relative share of agriculture in gross domestic product (% of GDP), which illustrates the agricultural sector's contribution to the Iraqi economy. It accounted for approximately 3.39% of GDP in 2024. These indicators are suitable as dependent variables in the standard model, representing the level of investment (or agricultural output, which is influenced by investment and support).

Table 5. Description of the Proposed Study Variables

Nature of Use	Data Source	Symbol	Variable
Dependent variable measuring agricultural investment/activity	World Bank	VAagri	Agricultural value added (billion $)
Alternative dependent variable used in some models	World Bank	AgGDP%	Share of agriculture in GDP
Primary independent variable	Targeted Support Indicators (Composite Index)	GovSup	Government agricultural subsidies
Independent variable	Iraqi Agricultural Budget Data	GovExp	Government agricultural spending
Control variable	Agricultural Loan Data	CredAgr	Agricultural credit
Control variable	Data on Persons Employed in Agriculture	AgriEmp	Agricultural employment

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Source: Prepared by the researcher.

2. Trends in Raw Data (Indicators)

•Trends in Agriculture in the Iraqi Economy: The agricultural sector's contribution to GDP peaked in 1995 (at approximately 20.59%), then gradually declined to around 3–5% in recent years .

• Historical Agricultural Value Added: According to economic history data, agriculture in Iraq experienced growth that was distributed over the years and even into the early years after 2000, providing a good basis for analysis .

3. The Standard Model That Recommends: Estimation of the standard association between government support and the increase of agricultural investment can be accomplished via the utilisation of any one of the following:
ARDL model, provided that the requirements for stationarity are satisfied
The mathematical definition of the model is as follows: A logarithmic model was chosen in order to improve the attributes of the time series and reduce the amount of variation that was present:

$$\ln\ VAAGRI_t = \alpha + \beta_1 \ln\ GOVEXP_t + \beta_2 \ln\ AGEMP_t + \beta_3 \ln\ AGGDP_t + \varepsilon_t$$

where:

$VAagri_t$:Agricultural value added.

$GovSup_t$:Government agricultural support.

$GovExp_t$:Government spending on agriculture.

$CredAgr_t$:Agricultural Credit.

$AgriEmp_t$:Agricultural labor.

ϵ_t :Random error.

4. A description of the variables classified as standard:

- The dependent variable VAAGRI, which stands for Value Added in the Agricultural Sector, is a quantitative indicator that reflects the expansion of agricultural investment. The value of this variable is expressed in billions of dollars.
- Independent variables: These were represented by the percentage of agriculture's contribution to gross domestic product (AGGDP), the proportion of agricultural employment in the total labour force (AGEMP), and the quantity of government expenditure on the agricultural sector (GOVEXP), which served as an indicator of government assistance..

Table 6. Autoregressive Stationarity Test (ADF)

Result	First team	Chain level	The variable
I(1)	Inactive	Non-stationary	VAAGRI
I(1)	Inactive	Non-stationary	GOVEXP
I(0)	—	Stationary	AGEMP
I(1)	Inactive	Non-stationary	AGGDP

Source: Prepared by the researcher.

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This table shows the results of the time series stationarity tests for the study variables from 1995 to 2023, using the Augmented Dickey–Fuller (ADF) test. The results show that some variables are not stationary at the level, but they become stationary after taking the first difference, which means they are first-order integrated (I (1). This validates the shift to cointegration tests and the application of suitable standard models for enduring relationships. Based on the preceding analysis, we can deduce that the disparity in integration orders between I(0) and I(1) substantiates the application of the ARDL model .

Table 7. Joint integration test (Bounds Test)

I(0)	**I(1)**	**F-Statistic**
2.79	3.67	**5.12**

Source: Prepared by the researcher.

This table presents the results of the cointegration test between the variables of government support and agricultural investment and the remaining explanatory variables. The statistical values indicate the presence of at least one cointegrating vector, suggesting a long-run equilibrium relationship among the variables. This result reflects that government support has a sustainable impact on agricultural investment, rather than merely a temporary one, which reinforces the theoretical and economic foundation of the study. Since the calculated F-value is greater than the critical value → there is a long-run equilibrium relationship between the variables.

Table 8. Long-run ARDL Model Estimation

Meaning	The value of t	The Laboratory	The variable
Connotative	3.02	+0.41	GOVEXP
Connotative	2.21	+0.28	AGEMP
Connotative	2.89	+0.35	AGGDP
Connotative	−1.98	−1.74	C

Source: Prepared by the researcher.

Due to the fact that agricultural employment continues to be a key driver of investment and agriculture's contribution to GDP indicates a positive long-term impact, the table that is located above demonstrates that a one percent increase in government spending on agriculture results in around forty one percent of an increase in agricultural investment. The findings of the estimation of the long-run standard model coefficients are also presented in the table. The coefficients for government support are present in the table, and they are positive and statistically significant. This indicates that an increase in government support increases agricultural investment in Iraq .The results also show that certain other economic variables, such as agricultural output and employment, play a supporting role in investment growth. These results confirm the validity of the study's main hypothesis regarding the impact of government support.

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Table 9. Error Correction Model (ECM)

Significance	Value	ECM factor
at 1%	Moral	−0.63

Source: Prepared by the researcher.

The table above shows the results of the error correction model, which measures the short-run relationship and the speed at which variables return to long-run equilibrium. The sign and significance of the error correction coefficients indicate the presence of an effective correction mechanism, whereby part of the deviation from equilibrium is corrected within a short period of time. This reflects that short-term shocks in government support or agricultural investment do not permanently affect the equilibrium relationship between the variables. The results indicate that 63% of the short-term deviation is corrected annually toward the long-term equilibrium.

Table 10. Model Quality Tests

White Test	Breusch-Godfrey	Durbin-Watson	F-test	R^2	Test
No heterogeneous variation	No personal connection	1.91	Moral	0.82	Result

Source: Prepared by the researcher.

This table shows the results of diagnostic tests for the regression model, like the normality test for residuals, the heteroscedasticity test, and the autocorrelation test. The results indicate that the model possesses robust statistical characteristics, as it is devoid of any fundamental statistical deficiencies, hence augmenting the dependability of the findings. These tests show that the model is valid for use in economic analysis and interpretation, and it is strong both statistically and economically.

5. Discussion of Results

The empirical results confirm that government agricultural support (measured by public spending) plays a pivotal role in the development of agricultural investment in Iraq, both in the short and long term. They also highlight the importance of structural factors (employment and contribution to output) in enhancing the effectiveness of support. The econometric analysis found a long-term equilibrium relationship between government support and agricultural investment in Iraq, with a positive and significant impact of government agricultural spending. The results underscore the need to redirect support toward productive investment rather than consumption-oriented support, thereby enhancing agricultural sustainability.

The results of the econometric analysis, which was based on the Autoregressive Distributed Lag (ARDL) model for the period 1995–2023, revealed a long-term positive relationship between government support and agricultural investment growth in Iraq. This finding reflects the pivotal role that government policies play in supporting this incredibly important sector. The Bounds Test was used to verify the existence of this cointegration. The F-statistic that was calculated reached 5.12, which is greater than the upper threshold value at the 5% significance level. This indicates that there is a long-term relationship between the variables that are employed in the model. In terms of the calculation of long-run coefficients, the findings demonstrated that the government's expenditures on agriculture, which serve as an indicator of the government's support, had a positive and statistically significant impact on the expansion of agricultural investmentThe coefficient for this variable was approximately 0.41, meaning that a 1% increase in government agricultural spending leads to a 0.41% increase in agricultural

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investment, holding other factors constant. This effect indicates that directing government financial resources toward the agricultural sector contributes to improving agricultural infrastructure, supporting production inputs, and reducing the risks faced by investors in this sector, which enhances the attractiveness of agricultural investment in the long term.

Agricultural employment was found to have a positive and statistically significant impact on agricultural investment, with a coefficient of roughly 0.28. This indicates that a 1% increase in agricultural employment corresponds to a 0.28% increase in agricultural investment. The findings also demonstrated that agricultural employment had a favourable impact on agricultural investment. Despite the general trend towards a fall in the contribution of agricultural employment to the Iraqi economy as a result of structural transformation and the shift towards non-agricultural sectors, this result demonstrates the importance of labour in supporting agricultural activity. This outcome is a reflection of the fact that labour is essential to the support of agricultural activity .Nevertheless, the availability of agricultural labor remains a key factor supporting investment, particularly in traditional agricultural activities and small and medium-sized enterprises. As for the variable representing the agricultural sector's contribution to GDP, it also showed a positive and significant impact, with a coefficient of approximately 0.35. This indicates that improved performance of the agricultural sector and its increased contribution to GDP bolster investor confidence and lead to a broadening of the agricultural investment base. This effect also reflects the reciprocal relationship between the growth of the agricultural sector and investment in it, as each contributes to supporting the other.

In terms of the dynamics that occur over a short period of time, the Error Correction Model (ECM) demonstrated that the error correction coefficient was around –0.63, which is statistically significant at the 1% level. This indicates that agricultural investment reacts rapidly to policies implemented by the government and corrects short-term imbalances. It is estimated that around 63 percent of any departure in agricultural investment from its long-term equilibrium path is fixed within one year.

In terms of model quality, the coefficient of determination (R^2) was approximately 0.82, indicating that about 82% of the variation in agricultural investment can be explained by the independent variables included in the model. Diagnostic tests also showed no significant statistical issues, such as autocorrelation or heteroscedasticity, which reinforces the reliability of the results obtained.

On the basis of the aforementioned, the findings of the study confirm that the government's agricultural support in Iraq is a significant factor in the development of agricultural investment, both in the short term and in the long term. It is necessary to concentrate on the efficient targeting of this support in order to achieve the greatest possible economic impact. It is possible to assert that the findings of the study provide evidence in support of the primary hypotheses and offer confirmation of the central role that government support plays in the growth of agricultural investment in Iraq. Furthermore, the findings highlight the importance of directing this support towards high-value-added productive activities in order to achieve sustainable agricultural development.

6. Final Conclusions:

- The study reached a set of important scientific conclusions regarding the impact of government support on the development of agricultural investment in Iraq during the period 1995–2023, based on a standard economic analysis using the Autoregressive Distributed Lag (ARDL) model and real-time data. This analysis contributed to a deeper understanding of the nature of the relationship between the study variables in both the short and long term.
- The findings indicated a sustained positive correlation between government agricultural subsidies and the expansion of agricultural investment in Iraq, validating that state intervention in the agricultural sector is a critical determinant in enhancing agricultural investment activities. This effect was clearly shown by the fact that the government agricultural spending coefficient was statistically significant. This means that fiscal policies aimed at agriculture are very important for boosting long-term agricultural investment.
- •According to the findings of the study, increases in government spending on agriculture have a positive and significant impact on the growth of agricultural investment. This is because increases in agricultural spending help improve the investment environment by providing production inputs, supporting agricultural infrastructure, and reducing the risks that investors in the agricultural sector face. The need of channelling government support towards

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productive characteristics rather than confining it to short-term consumer support is increased by this discovery, which highlights the relevance of this direction.

- The results showed that agricultural employment continues to be a significant factor in the growth of agricultural investment, despite the relative decline in its share of the total labor force. This indicates a complementary relationship between capital and labor in the agricultural sector, which calls for a focus on developing agricultural skills and improving workforce efficiency to maximize the impact of investment.
- According to the findings of the study, there is a positive correlation between an increase in the contribution of the agricultural sector to GDP and an increase in agricultural investment. This is a reflection of the sector's improved economic performance and increased attractiveness to investors. This finding highlights the significance of enhancing the role that agriculture plays in Iraq's economic structure in order to achieve more balanced economic development.
- The results of the error correction model showed a relatively high adjustment speed towards long-run equilibrium, indicating that short-term imbalances in agricultural investment can be corrected within a relatively short period of time thanks to the impact of government policies, which reflects the flexibility of agricultural investment and its responsiveness to government interventions.

In light of the above, it can be concluded that government agricultural subsidies are an effective tool for promoting agricultural investment in Iraq; however, to maximize their benefits, the design of subsidy policies must be improved and targeted toward high-value-added agricultural production activities, thereby contributing to sustainable agricultural development and enhancing food security.

Practical Recommendations

In light of the study's findings regarding the impact of government support on the development of agricultural investment in Iraq, a set of practical recommendations can be offered to help enhance the effectiveness of agricultural policies and achieve sustainable development in this vital sector:

1. Instead of concentrating on short-term consumer subsidies that do not result in sustainable development outcomes, the study suggests that the government's agricultural support should be directed towards productive investment activities. These activities include the development of modern irrigation systems, the utilisation of advanced agricultural technologies, and the improvement of seeds and fertilisers.
2. Efforts should be made to improve the efficiency of government spending by adopting clear criteria for allocating agricultural resources and linking support to performance and productivity indicators. This will ensure that the agricultural sector receives the highest possible economic and social returns from the public funds that are allocated to it.
3. The study suggests that an attractive investment environment should be created by streamlining administrative procedures, providing legal safeguards for agricultural investors, and facilitating access to agricultural financing. This would facilitate the investment of domestic and foreign capital in a variety of agricultural activities.
4. The findings highlight the significance of agricultural labour in offering support for investment. As a result, the study suggests that investments be made in the training and qualification of workers in the agricultural sector, the dissemination of agricultural extension services, and the development of the technical and managerial skills of farmers and investors.
5. The study recommends integrating the agricultural sector into long-term national development plans and increasing its contribution to GDP by supporting agricultural processing industries and value chains, thereby strengthening the linkages between agriculture and other economic sectors.
6. The study recommends the adoption of stable and consistent agricultural support policies that reduce fluctuations in government spending, given their role in boosting investor confidence and ensuring the long-term sustainability of agricultural investment.

The Study's Final Conclusion

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The study found that government support is one of the most important parts of developing agricultural investment in Iraq. The empirical results showed a positive and statistically significant long-term relationship between government spending on agriculture and investment in the agricultural sector from 1995 to 2023. The study showed that fiscal policies that help agriculture can make the investment climate better, increase productivity, and make the agricultural sector's contribution to the national economy stronger.

The findings also confirmed that the effectiveness of government support depends not only on its magnitude, but also on how effectively it is directed toward productive activities capable of generating sustainable added value. In this context, the importance of developing integrated agricultural policies that take into account human resource development, improving agricultural infrastructure, and strengthening the private sector's role in agricultural investment is highlighted.

Accordingly, the findings of this study represent a scientific contribution that can assist policymakers in designing agricultural and fiscal policies, thereby helping to achieve sustainable agricultural development and enhance food security in Iraq. The study also opens avenues for future research that could examine the impact of various support instruments or analyze regional disparities in agricultural investment within the country.

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