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Study of the impact of some agricultural indicators on economic growth in Iraq for the period 1990-2022

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Abstract
The study aims to examine the relationship between agricultural investment, agricultural trade openness, and economic growth in Iraq, to elucidate the mechanisms and factors involved in this relationship, and to formulate policies and procedures to enhance agricultural investment, agricultural trade openness, and economic growth in Iraq. Openness enhances the volume of Iraq's agricultural output and fosters economic development. The researchers utilised the ARDL regression analysis method. The analysis indicated that agricultural investment influences economic development, however agricultural trade openness does not impact the country's economic growth. The investigation indicates that enhanced investment in agriculture is essential in Iraq for economic growth, as well as for augmenting agricultural trade openness and improving the balance of trade, all of which will positively impact the nation's economic development.

Keywords: Agricultural investment, agricultural trade openness, economic growth

Introduction

Agriculture is crucial to the Iraqi economy and profoundly influences food security and employment levels. From 1990 until 2022, Iraq had economic and political challenges that impacted many sectors, including agriculture. This inquiry aims to evaluate the impact of several agricultural measures, such as agricultural expenditure and trade openness, on Iraq's economic development. Agricultural investment is considered important to enhancing agricultural production and economic prosperity. Research indicates a strong correlation between agricultural investment and economic development, since heightened investment in this sector may enhance productivity and elevate national revenue. (Kamal, 2018).

Openness in agriculture's trade is considered paramount to the growth of agriculture. Studies have demonstrated that trade openness promotes efficiency in production and improves competitiveness in the market (Authors, 2013) [2].

Importance of the research

Agricultural investment and agricultural trade openness help provide food supply diversity. When a country is able to import agricultural products from global markets, it can enhance food availability and achieve food security in the event of a shortage of local crops, and agricultural investment and agricultural trade openness encourage competition and innovation in the agricultural sector.

Enhancing economic growth When a country is able to export agricultural products to global markets, it achieves additional financial returns and enhances agricultural industries sectors such as food processing and export and enhances the sustainability of local agriculture.

Research Problem

The agricultural sector of Iraq has difficulties in improving its productivity and maintaining international standards. On the other hand, this may preclude the ability to reach global markets. Conversely, the lack of infrastructure in the agricultural sector necessitates a balancing act between agricultural spending and agricultural openness in order to maintain the sustainability of the local agricultural sector and increase the economic opportunities.

Research Hypothesis

The study is based on the following assumptions: (Agricultural indicators have an impact on Iraqi economic growth)

Research Objectiv-

- Analyze the relationship between agricultural investment, agricultural trade openness and economic growth in Iraq.
- Understand the mechanisms and factors that may affect this relationship, and identify policies and procedures that can be taken to enhance agricultural trade openness and achieve economic growth in Iraq.

Research sample and analysis method: The research relied on some agricultural indicators (agricultural investment, agricultural trade openness, economic growth) in Iraq for the period 1990-2022 after obtaining them from statistical sites and government agencies as well as international organizations such as the World Trade Organization and others. The method of joint integration analysis was used and the causal relationship between agricultural indicators and economic growth in Iraq was studied using the E-views 13 program.

Trade openness and economic growth

Trade openness first

The relationship between GDP and foreign trade represents an indicator to measure the level of openness of a country's trade to foreign countries. One of these indicators is called the (trade exposure index), which represents the extent of the country's economic trade exposure to the countries of the world. This ratio is calculated according to the equation (exports + imports for a given year divided by the GDP for the same year, as a percentage). The higher the percentage, the more exposed the economy is to the countries of the world. This ratio may reach more than (100%). In this case, it is more dependent on the economies of other countries and more affected by economic changes, events, and global financial crises (Khalil and Mashaal, 1986, 186) [3].

Second: Agricultural investment Increasing investment in infrastructure, industries and technology can lead to increased productivity and enhanced economic growth. Technological development and innovation can contribute to improving economic efficiency, developing new sectors and increasing productivity. Providing appropriate education and developing working skills can contribute to increasing productivity and enhancing economic growth. Investment is one of the basic factors responsible for determining fluctuations in both the size of national income, use and production, as it is one of the most vulnerable elements to fluctuations and instability. Therefore, the concept of investment has occupied a prominent position in ancient and contemporary economic thought due to its effective role in achieving the desired agricultural economic development. It is difficult to find a single concept of investment that is able to grasp the variable of investment from its various aspects, which led to giving the concept of investment the productive employment of capital or, in other words, directing savings towards uses that lead to the production of an economic need or needs. (Al-Shammari, 2010) [4].

Third: Economic Growth

Economic growth is the rise in value of a country's economy over time. The frequently used metric of economic growth is the rise in gross domestic product (GDP), which is the value of all of the products and services produced by a nation over a specific time.

Economic growth is vital to the betterment of people's lives and to the creation of a more evolved society. The effect of agricultural investment and agricultural trade reform on the Iraqi economy is important, this may lead to higher agricultural output and exports, as well as a better overall economic performance.

Overall, the economic growth of Iraq is dependent on multiple aspects, including improving security and stability, improving the business environment, creating infrastructure, promoting investment and innovation, etc. Good government policies and economic reforms can facilitate an increase in Iraq's economic development and promote long-term stability. (Al Faraj, 1991) [9]

Economic growth is the rise in value of a country's economy over time. The frequently used metric of economic growth is the rise in gross domestic product (GDP), which is the value of all of the products and services produced by a nation over a specific time.

Economic growth is considered an important indicator of the health of the economy, as it reflects the increase in productivity and economic wealth of the country. Economic growth can have positive effects on society, such as increasing job opportunities, improving the standard of living, providing basic services, and providing opportunities for social development and infrastructure. (Ibrahim and Muhammad, 2023) [5]

Table 1: The composition of the standard model of the investigated relationship.

variable name	code	Variable type
GDP	Y	dependent
Agricultural Investment	X1	independent
Agricultural Trade Openness	X2	independent

Source: Prepared by the researcher

Unit Root Test

Augmented Dicky - Fuller (ADF)

The Augmented Dickey-Fuller (ADF) test is significant at the I(0) level as indicated in Table (2). Y is non-stationary at the I(1) level in all three situations, and after the first difference and the independent variable x1 is stationary at this level, but the independent variable x2 is not stationary at this level and is instead stationary after the first difference. (Pantura, 1994)

Table 3: The results of employing the ADF test to assess the stability of the variables at level I(0) and first-order difference I(1) (sleep).

Level		**Y**	**X1**	**X2**
With Constant	t-Statistic	1.524	2.769	1.737
	Prob.	0.998	0.074**	0.403
With Constant & Trend	t-Statistic	1.855	== ==	1.528
	Prob.	0.653	== ==	0.798
Without Constant & Trend	t-Statistic	2.074	== ==	0.604
	Prob.	0.989**	== ==	0.447
At First Difference				
PE	**Level**	**Y**	**X1**	**X2**
With Constant	t-Statistic	7.309*	== ==	4.842*
	Prob.	0.000	== ==	0.000
With Constant & Trend	t-Statistic	== ==	== ==	== ==
	Prob.	== ==	== ==	== ==
Without Constant & Trend	t-Statistic	== ==	== ==	== ==
	Prob.	== ==	== ==	== ==

Source: Created by researchers based on Eviews 10 findings

***: significant at 10% level, **: significant at 5% level, *: significant at 1% level

VAR lag selection criterion						
Endogenous variables: X1 X2 Y						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1055.440	NA	9.10e+25	68.28647	68.42525	68.33171
1	-1001.586	93.81036*	5.06e+24*	65.39266*	65.94775*	65.57361*
2	-997.1656	6.844870	6.93e+24	65.68810	66.65951	66.00476
* indicates lag order selected by the criterion						

Ivanov,2005)*(*

The outcomes in the above table demonstrate that, according to the VAR order of lag selection, the optimal amount of time is (1) According to the AIC and SC rules. (Ibrahim,2015) [8]

Dependent Variable: Y				
Method: ARDL				
Date: 01/03/25 Time: 20:36				
Selected Model: ARDL(3, 4, 0)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Y(-1)	0.566549	0.191567	2.957449	0.0081
Y(-2)	0.282112	0.215048	1.311856	0.2052
Y(-3)	0.660846	0.268297	2.463110	0.0235
X1	-0.283254	0.140116	-2.021566	0.0575
X1(-1)	0.011362	0.179295	0.063371	0.9501
X1(-2)	-0.218895	0.184014	-1.189556	0.2489
X1(-3)	0.446226	0.160963	2.772235	0.0121
X1(-4)	-0.298663	0.141010	-2.118020	0.0476
X2	-750.3512	1114.751	-0.673111	0.5090
C	55335.32	126676.7	0.436823	0.6672
R-squared	0.892523	Mean dependent var		617822.0
Adjusted R-squared	0.841613	S.D. dependent var		556728.1
S.E. of regression	221565.9	Akaike info criterion		27.72163
Sum squared resid	9.33E+11	Schwarz criterion		28.19311
Log likelihood	-391.9636	Hannan-Quinn criter.		27.86929
F-statistic	17.53136	Durbin-Watson stat		2.247847
Prob(F-statistic)	0.000000			
* Note: all subsequent tests, p values included, do not account for the model.				
selection.				

The findings of the investigation reveal that agriculture expenditure has a substantial influence at the 0.05 level. The value of the parameter related with agricultural expenditure (-0.28) is negative, which has a major influence on economic growth, since spending may take a long time to reveal its consequences, which are only obvious thereafter, as the investment may have been made more than 10 years ago. The parameter of agricultural trade openness is (-750.35), which is not important, since the trade is already open in the nation, and there is also a low degree of food security, no matter if it is expanded or not. The balance of agricultural trade.

Conclusions

- The influence of agricultural investment on Iraq's economic development
- The absence of influence of agricultural trade liberalization on Iraq's economic development.

Recommendations

The necessity of expanding the volume of agricultural investment in Iraq, especially for projects that have an impact on economic growth, as well as expanding agricultural trade openness and improving the agricultural trade balance, which

will reflect positive results on economic growth in Iraq.

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