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An economic and econometric study of the response of agricultural investment to economic shocks in Iraq for the period [2004q1-2020q4]

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ABSTRACT

This manuscript aims to identify the relative importance of monetary and fiscal policies on the value of agricultural investment in Iraq using Vector Error Correction Model [VECM], the impulse response function [IFC], and analysis of variance [VDCs] and applying it using quarterly data for the period 2004q1-2020q4. Hence, the most important results was found that the fiscal and monetary policy in Iraq has a crucial role for agricultural investment as the main tool through which the country's oil wealth is transformed into economic results and distributed for the benefit of its population, simultaneously, the volatility of oil revenues poses a challenge to fiscal policy in preventing the transformation of revenue volatility into fluctuations in public spending that could Destabilize the economy and reduce the efficiency of government spending. Accordingly, the research recommended to diversifying the base of the Iraqi economy, which depends mainly at the present time on oil revenues, and creating an economy characterized by a gradual increase in the proportions of the contribution of other economic sectors in the formation of the gross domestic product, especially the agricultural sector, which adds cumulative values to the gross domestic product and constitutes a variety of financing sources for the budget and adopting early warning programs in the agricultural sector to respond to the problems resulting from these shocks at the lowest economic cost.

دراسة اقتصادية وقياسية لاستجابة الاستثمار الزراعي للصدمات الاقتصادية في العراق للمدة[2004q1-2020q4]

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الخلاصة

يهدف هذا البحث إلى تحديد الأهمية النسبية للسياسات النقدية والمالية على قيمة الاستثمار الزراعي في العراق، باستخدام نموذج متجه تصحيح الخطأ [VECM]، ودالة الاستجابة الفورية [IFC]، وتحليل التباين [VDCs]، باستخدام البيانات الربع سنوية للمدة [2004q1-2022q4] ، أهم النتائج التي توصل اليها البحث هي أن للسياسة المالية والنقدية في العراق دور حاسم في أداء الاستثمار الزراعي في العراق باعتباره الأداة الرئيسية التي من خلالها تتحول الثروة النفطية في البلاد إلى نتائج اقتصادية وتوزيعها بما يعود بالنفع على اقتصاد البلد، إلا أن تقلب الإيرادات النفطية يشكل تحدياً للسياسة المالية التي تعمل على منع تقلب الإيرادات التي بدورها تؤدي الى إلى تقلبات في الانفاق الحكومي للدولة والتي يمكن ان تنتج عنها زعزعة استقرار الاقتصاد وتقليل كفاءة الإنفاق الحكومي، وأوصى البحث بما يلي: تنويع الاقتصاد العراقي والذي يعتمد بشكل رئيسي في الوقت الحاضر على عائدات النفط، وخلق اقتصاد يتسم بالزيادة التدريجية في نسب مساهمة القطاعات الاقتصادية الأخرى في تكوين الناتج المحلي الإجمالي، وخاصة القطاع الزراعي الذي يضيف انتاجاً تراكميا على قيمة الناتج المحلي الإجمالي ويشكل مصادر تمويل متنوعة للموازنة العامة للدولة، واعتماد برامج إنذار مبكر في القطاع الزراعي للاستجابة للمشكلات الناجمة عن هذه الصدمات بأقل تكلفة اقتصادية.

الكلمات المفتاحية: الصدمات الاقتصادية، الاستثمار الزراعي، نموذج VECM، العراق، دوال الاستجابة .IFC

INTRODUCTION

Due to the Iraqi economy is highly dependent on oil, so the industrial and agricultural sectors are more vulnerable to shocks (Muhammad and Shaaibith, 2022) and (Pasten and Weber, 2020). Iraq's low agricultural production rate may indicate this, as economic development as a long-term goal is achieved through investment expansion policies, but the country has recently Economic development is adopted and the rate of investment required to achieve the accumulation of materials necessary for agricultural production is of great importance (Amberg at.el, 2022) and (Hasanov et.al, 2022). However, due to the shocks and crises the country has experienced, Iraq's agricultural production remains low, although it needs to be studied and managed to overcome the

negative impacts and maximize the positive impacts. This is due to low investment levels. (Jassim, 2022). The agricultural sector has suffered for decades from the negative effects of economic shocks that have affected it in different ways, primarily through government loans and other impacts, depending on the nature of the relationships and future impacts. especially in individual countries suffering from persistent shocks or crises (crisis countries) need to take appropriate policy measures. Assuming that this is consistent with the reality of the crisis, planners, policymakers, and decision makers should take into account the risk opportunities arising from economic shocks and be able to respond to and mitigate the severity of any shocks. Countries can ensure their ability to get back on their feet, ensure that the progress achieved is maintained and not lost, and reduce the amount of money lost (Merza, 2018).

Economic shocks in developing countries create dynamic, interconnected and influencing trends in the process of sustainable economic development in times of recession, widespread unemployment and increasing poverty. These shocks undermine prospects for growth, change and reform and lead to a deterioration in agriculture. Farmers are therefore the most vulnerable group to these impacts (Muhammad, 2016). As a result, economic growth and sustainable development continue to decline. (Al Gharbi and Mutawak, 2013). From an economic perspective, the crisis Iraq has suffered over the past four decades is one of a series of crises Iraq has faced in its modern history, but it is one of the longest, most severe, and most influential. It's a crisis. The main sacrifice of these decades has been the lack of a long-term vision and accompanying appropriate development policy and strategy, which has turned Iraq's economy into a crisis economy rather than an economy of performance and sustainable development. (Mishkin, 2013) and (Baek, 2022). Contributing to this was the weakness of the government's administrative and planning machinery, which is the main expression of the national tendency towards achieving sustainable development and progress in all its forms, especially in the agricultural sector. It was supposed to be (Merza, 2018).

The research problem can be formulated with the following questions:

1- Did the economic shocks negatively affect the agricultural reality in Iraq? If yes, how do you check it? And how big is that effect? How can this be predicted in the future? What are the required policies to face or mitigate shocks?

2- What are the proposals that would encourage the agricultural sector and develop the agricultural domestic product in Iraq?

The purpose of this study is to analyze how structural shocks affect the value of agricultural investments in Iraq. Previous studies and studies are of great importance in the field of scientific research due to the information they provide, and since this work represents an extension of what has gone before in this field, several You need to review your research quickly and easily. Examine previous research and refer to the results obtained. Many studies have considered Arab and foreign economies, some of which focus on fiscal and

monetary policy shocks, while others focus on the relationship between fiscal policy shocks and some macroeconomic variables. Some studies have focused on the relationship. We will mention the best of these studies (Meyer and Aliber, 2002). By studying the response of the agricultural sector to economic shocks in Ghana (Barros at.el, 2009) Demand and supply shocks to agricultural growth in Brazil were also investigated. In a study on the relationship between exports of processed agricultural products and real exchange rate shocks (Cinarm at.el, 2015), the case of Turkey (Pasten and Weber, 2020), conducted an analytical study on the impact of economic shocks on Egypt. Agricultural Exports, Discussion (Madlul, 2022) "Impact of Economic Shocks on Agriculture in Iraq from 2004 to 2020 and Response Policies". In a study conducted by (Al-Atabi, 2022) titled "Economic Analysis of the Impact of Economic Shocks on Some Agricultural Indicators in Iraq", the study was carried out during the period [1990-2019].

MATERIALS AND METHODS

The first step in estimating and measuring the relationships between the economic variables within the framework of long-term time series requires taking some necessary steps to reach the desired results. The time series is static (Jarociński and Karadi, 2022). The second step is to try to find a long-term relationship between the variables by conducting a co-integration test for those variables, the concept of the Error Correction Vector Model [VECM] is based on the premise that there is a long-term equilibrium relationship, and despite its existence, it is rare to achieve, as the difference between the two values at each time period represents an equilibrium error, and this error or at least part of it is modified or corrected in the long run. Therefore, this model was called the error correction model (Hasanov at.el,2022). The vector error correction model [VECM] is used when the variables included in the model have the property of co-integration, and this is a necessary condition for the application of this model. Which is an Auto-regressive vector [VAR] model with an error correction term added to it in order to bypass errors in the model description (Barros at.el,2009). The presence of co-integration between the studied variables indicates the existence of a long-term equilibrium relationship, in this case there must be a causal relationship in at least one direction, which is revealed by the Granger causality test, but the form and direction of the causal relationship and not only the direction is reached It is achieved by using vector error correction [VECM] (Bodie et.al, 2013)

The [VECM] model works to determine the relationships between economic variables in the [long and short] terms, as the differences in the variables with the duration of the slow Lags represent the causal relationships and their shape in the short term, and the significance of the parameters is identified in the short term through the use of the Wald test to verify From accepting or rejecting the null hypothesis which states that the estimated parameter is not significant, by looking at the probability level of the value [chi-square]. If the probability level is less than [5%] the null hypothesis is rejected in favor of the alternative hypothesis to confirm the significance of the estimated parameter and vice versa

(Ilori. et. al,2022) and (Roberts and Nord, 1985). The shape of the relationship in the long term, and the VECM model can be represented through the following two equations 4 (Matouk,2013).

$$\Delta Y_t = a_1 + \sum_{i=1}^{n} a_j \, \Delta Y_{t-j} + \sum_{i=1}^{n} \beta_i \, \Delta X_{t-i} + P_1 \mu_{t-1} \qquad [1]$$

$$\Delta X_t = a_2 + \sum_{j=1}^{n} \beta_i \, \Delta X_{t-j} + \sum_{j=1}^{n} \beta_j \, \Delta Y_{t-i} + P_2 v_{t-1} \qquad (2)$$

Δ denotes the differences for the variables, while μ_[t-1] and v_[t-1] denote the error-correcting limits.

The error correction limit indicates the existence of a long-term equilibrium relationship in the event that it is negative and significant (Dawood, 2000). The error correction limit measures the amount of correction [speed of adjustment] of the imbalance that takes place in the short term to reach the equilibrium value in the long term (Al-Atabi, 2022). Variance decomposition measures the relative importance of the variable in explaining the variation in prediction errors for the variables in the model under study. In other words, it reflects the relative contribution of the change in one variable to the interpretation of the change in the other variables separately. The variance components and impulse response functions can be obtained using the following model 5 (Baek, 2022).

$$Yt = \mu + \sum_{i=0}^{\infty} M_i \, Vt - 1 \qquad [3]$$

As Mi is the matrix of model coefficients [n×n], V represents the structural shock vector or the random error limit vector [n×1] [20]. And the prediction error can be obtained in a certain period h through the following equation: -

$$Yt + h \; - Et(Yt + h) = \sum_{1=0}^{h-1} Mi \; Vt + h - 1 \qquad [4]$$

Then we segment the prediction error for each vehicle for Yt, which we symbolize as Yjt, so that the equation becomes as follows:-

$$Yj, t + h \; - E_1(Yj, t + h) = \sum_{l=0}^{h-1} [\, mj1, i \; v1, t + h - 1 + \; + mjm, i \; vm, t + h - 1] \qquad [5]$$

Since mj1,i expresses the element j,1] in the matrix M, the previous equation can be written in a different way to become as follows:-

$$Yj, t + h \; - E^1(Yj, t + h) = \sum_{k=0}^{n} [\, mjk, i \; vk, t + h - 1 + \ldots \ldots + mjk, i \; vm, t + h - 1] \qquad [6]$$

Since the errors V do not form any correlation and have a variance equal to 1, the prediction error will be according to the following equation: -

$$E[Yj, t+h - E^1(Yj, t+h)]^2 = \sum_{k=1}^{n} m^2 jk, 1 + \cdots + m^2 jk, h-1 \quad [7]$$

The research relied on the deductive approach in analyzing general phenomena, and used the quantitative method in the measurement process, as well as the descriptive approach and comparative analysis to show the relationship and differences in their required locations, and based on the Eviews Ver.10 program for standard methods. The Model description:

$$I = f\ [OP, ORE, PEX, M1, R, CB]$$

whereas:

I : Refers to Agricultural investment in million dinars [as a dependent variable]

The independent variables include:

OP: Refers to Oil prices in dollars .barrel

ORE : Refers to oil revenues million dinars

PEX : Refers to Investment allocations for the agricultural sector, million dinars

M1: Refers to cash offer million dinars

R: Refers to interest rates on agricultural loans %

CB : Refers to The exchange rate is in dinars /dollars.

RESULTS AND DISCUSSION

Results of the Expanded Dicky Fuller Test [ADF][10], Table [1] shows the results of the unit root stability test for the economic variables studied using the Expanded Dickie Fuller Test [ADF].

Table (1): Result of unit root test according to ADF for research variables for the period 2004q1-2020q4

At Level								
CB	R	M1	PEX	ORE	OP	I		
-2.8650	2.6740	-0.4193	-0.9383	-2.6278	-2.2203	-2.3027	t-Statistic	With Constant
0.0550	*1.0000*	*0.8991*	*0.7697*	*0.0926*	*0.2012*	*0.1742*	*Prob.*	
*	n0	n0	n0	*	n0	n0		
-2.6357	2.5323	-1.4112	-1.8711	-2.5008	-2.1789	-2.3200	t-Statistic	With Constant & Trend
0.2664	*1.0000*	*0.8487*	*0.6578*	*0.3269*	*0.4930*	*0.4174*	*Prob.*	
n0	n0	n0	n0	n0	n0	n0		
-1.4115	-1.0662	2.3185	1.2254	-0.9864	-0.8860	-1.3844	t-Statistic	Without Constant & Trend
0.1459	*0.2561*	*0.9947*	*0.9423*	*0.2871*	*0.3286*	*0.1530*	*Prob.*	
n0	n0	n0	n0	n0	n0	n0		
At First Difference								
d(CB)	d(R)	d(M1)	d(PEX)	d(ORE)	d(OP)	d(I)		
-3.3914	-2.7572	-5.2482	-13.2035	-15.6008	-5.7157	-2.8515	t-Statistic	With Constant
0.0148	*0.0701*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0567*	*Prob.*	
**	*	***	***	***	***	*		
-3.5357	-3.4097	-5.2070	-13.0943	-15.5803	-6.0827	-2.8899	t-Statistic	With Constant & Trend
0.0437	*0.0588*	*0.0003*	*0.0001*	*0.0001*	*0.0000*	*0.1724*	*Prob.*	
**	*	***	***	***	***	n0		
-3.4255	-2.4730	-3.9481	-12.8576	-15.7206	-5.7617	-2.8733	t-Statistic	Without Constant & Trend
0.0009	*0.0140*	*0.0002*	*0.0000*	*0.0000*	*0.0000*	*0.0047*	*Prob.*	
***	**	***	***	***	***	***		

Source: prepared by the researcher based on the outputs of the statistical program Eviews10.

And that it became static when taking the first difference to it, and on this basis the time series can be said to reflect degree instability and first-order differential stability, that is, it is first-order integrated [1] As illustrated by the figure [1] and [2] below:

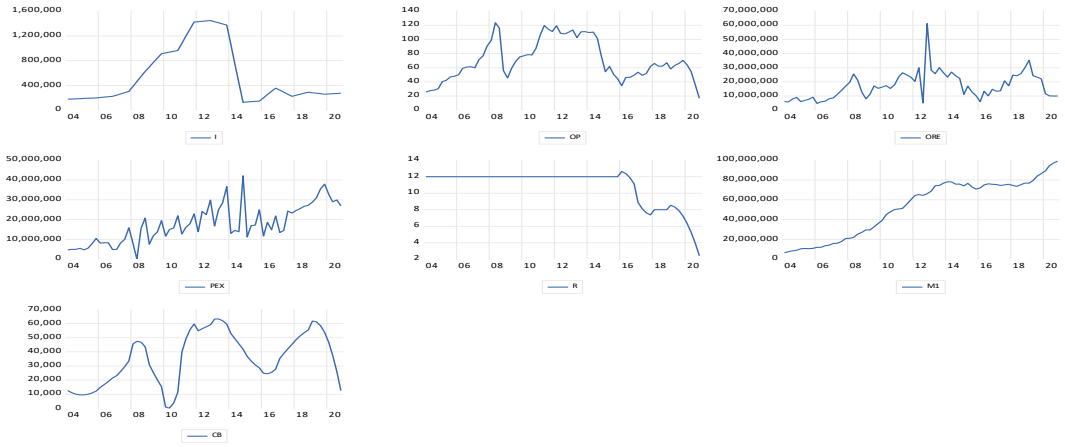

Figure 1. Fluctuations of the time series of the variables studied

Source: prepared by the researcher based on the outputs of the statistical program Eviews10.

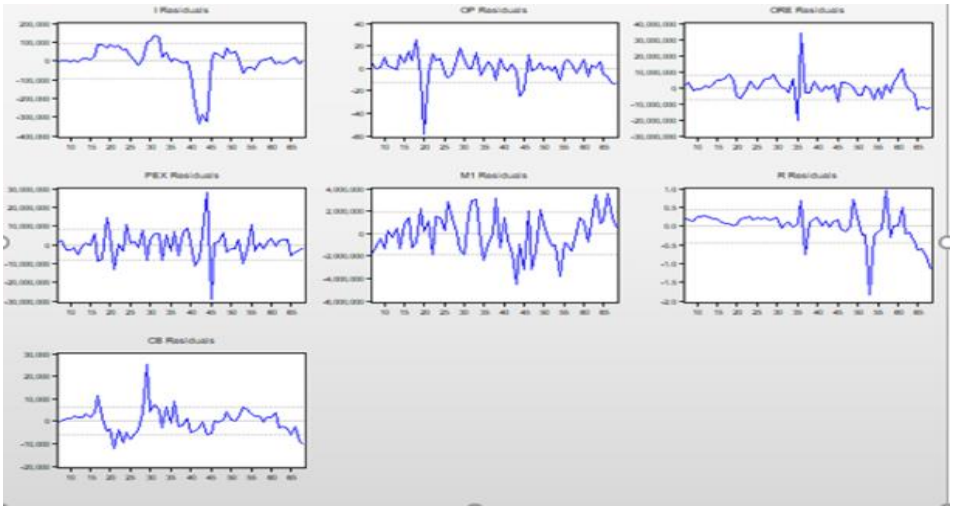

Figure 2. Residuals of the estimator model

Source: compiled by the researcher based on the results of the statistical program Eviews10.

Table (2): Juselius-Johansen cointegration test results:

Critical value	Statistic value	Prob	The alternative hypothesis	null hypothesis	Result
Trace Test					
125.6154	178.9097	0.0000	R=0	R=1	Trace test indicates 4 cointegrating eqn[s] at the 0.05 level.
95.75366	114.9211	0.0013	R>1	R=0	indicates the rejection of the hypothesis at the 0.05 . level
69.81889	76.21648	0.0141			
47.85613	50.01060	0.0309			
Maximum Test					
46.23142	63.98859	0.0003	R=0	R=1	Max-eigenvalue test indicates 1 cointegrating eqn[s] at the 0.05 level.
			R>1	R=0	indicates the rejection of the hypothesis at the 0.05 . level

Source: prepared by the researcher based on the outputs of the statistical program Eviews10.

This test is used in the case of small time series by the greatest likelihood as well as in the case of more than two variables to choose the extent to which a long-term cointegration

relationship exists between economic variables. variables are studied. although differences and imbalances may appear in the short run and this requires the use of the Johanson test (Johansen and Juselius, 1990), the time series of the studied variables are first-order integrated. And since the results of the stability test showed that each of the agricultural investment and the independent variables are static at the first difference, this means that this test can be used. The presence of at least one co-integration between the variables, through the use of the trace test and the maximum eigenvalue test. In the case of the trace test, the level of significance is 0.019, which is less than 0.05, and this means that there are 4 vectors for co-integration in the case of trace test in the case of the value of greatness, the value of the significance level was 0.078, greater than 0.05, it means that there is a long-run equilibrium relationship between the variables. It is clear from the table [2]. The results of the optimal number of deceleration times test.

Table (3): The results of the optimal number of deceleration times test

Lag	AIC	SC	HQ
0	167.9290	168.1671	168.0226
1	150.3498*	158.9224	153.7214*
2	154.4225	159.3275	155.1718
3	152.9274	156.4993	154.3322
4	153.0407	158.2795	155.1012
5	152.6048	159.5105	155.3209

Source: prepared by the researcher based on the results of the Eviews statistical program.

The number of appropriate deceleration times is determined or tested based on the lowest Akaike [AIC] value. Which is the most widely used, which aims to reduce the variance compared to the increase in the parameters of the model, where comparison is made between models according to its smallest value.

Table (4): Long-term parameter results of the VECM . model

Variables	Coefficient	Std. Error	t-Statistic
D[I]	1.000000		
D[OP]	4850.691	4038.28	1.201177
D[ORE]	-0.038125	0.00839	-4.54067
D[PEX]	0.127993	0.01572	8.14183
D[M1]	0.047037	0.00891	5.28063
D[R]	-230796.1	48898.8	-4.71987
D[CB]	2674662	1.23648	2.16312
R-squared	0.620208	Mean dependent var	1428.66
Adjusted R-squared	0.574371	S.D. dependent var	88476.85
F-statistic	13.53074	Prob[F-statistic]	0.000000

Note: The value of the error correction vector [ecm] is [-0.543101] and it is significant [-3.2616], It validates the form condition.

Based on the results in Table [4], he found that when the value of t reached [1.201177], oil prices had no significant impact on the value of agricultural investments. This is an expected

outcome as oil prices are rising. Economic shocks have an indirect impact on the agricultural sector through transmission channels through which they are transmitted to the sector. The oil income variable had a significant impact on the value of agricultural investment, but its sign was negative. It negatively affects the value of agricultural investments. Funds allocated to the agricultural sector from the state's general budget do not flow sufficiently to the sector due to poor administration, corruption, and looting due to lack of government control. The results also showed that investment allocation has a positive and significant impact on the value of agricultural investment, as the value of (t) was [8.14183]. This means that an increase in the unit's investment allocation [capital expenditure] increases the value of the unit. Investment in agriculture will increase by [0.127993]. This is the case for money supply variables. The value of t [5.28063] has a positive and significant impact on the value of investment in agriculture because it means that as the money supply increases, the value of investment in agriculture also increases. This is a result that corresponds to the economic logic, and the variable interest rate criterion applied to agricultural loans is such that the value of t is [-4.71987], since an increase in interest rates has a negative impact on the value of agricultural investments. Therefore, the sign is significant and negative, so it is the same as economic logic. Furthermore, the sign of the exchange rate variable is positive and significant since the value of t is [2.16312].

From Table [4], we can also see that the change in agricultural investment value due to the probability value [F-statistic] helps explain the change in the variables [OP, PEX, GDP, M, I]. Calculated as [0.000] and statistically significant at the [5%] level. We also see that the correlation coefficient R2 is 62 [%] and the weight R2 is 57 [%]. This means that the independent variable explains 62[%] of the variation in the independent variable. This is small, but normal in cases like this. Although the general trend of the variables is modeled as excluded, the attention and focus is on the value of F, which also appears to be significant, with the P value reaching [0.0000] and [5%] is less than. Importance of the overall model. The value of the error correction factor [ecm] is negative, significant, and less than 1, indicating that the adjustment rate of the stationary system increases with an adjustment rate of [06%]. per year, this is a fairly slow rate, and its value [t] is approximately [-3.2616].

Figure [3] shows that all the nodes fall within the unit circle, so it can be considered that the model is stable, which means that the model does not suffer from a problem in correlation errors or instability of variance.

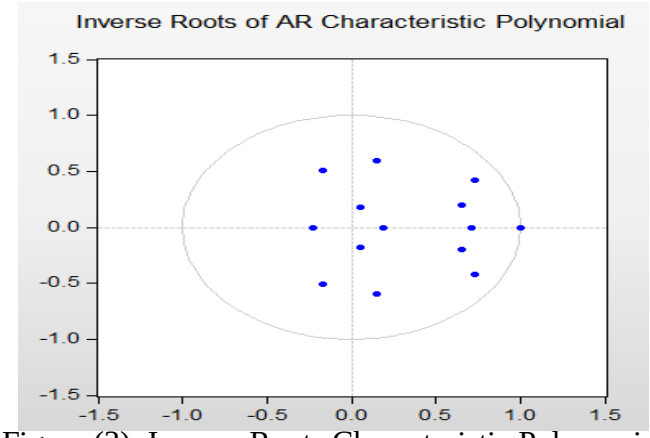

Figure (3): Inverse Roots Characteristic Polynomial

Source: prepared by the researcher based on the outputs of the statistical program Eviews10.

Structural stability test of the estimated model parameters

The cumulative sum of squares test of regression residuals indicates that the estimated coefficients of the model used are structurally static over the study period, since the graphical values of the aforementioned test statistics for this model were within the critical limits at the significance level of 5% as shown in Figure [4].

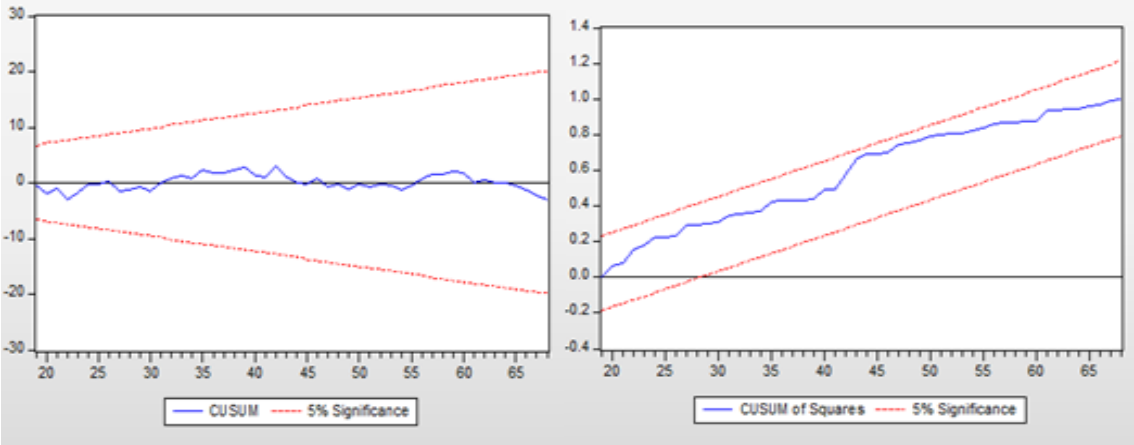

Figure [4]: Structural stability test of the estimated model parameters

Source: prepared by the researcher based on the outputs of the statistical program Eviews10.

When a model passes the standard model problem test and is free of these problems, it demonstrates the effectiveness of the model and increases the applicability of model results in analysis, forecasting, and policy making. Impulse Response Function The 17-year response function estimation shown in Figure [5] focuses on controllable variables and variables representing economic policy that reduce the occurrence of shocks to oil revenues [fiscal policy shock] increases by one standard deviation, and the response of agricultural investment to the shock is always negative until the end of the period. A one standard deviation shock to public spending [fiscal policy shock] occurs, and the response of agricultural investment to the shock is always positive, but tends to decrease in the first period and increase slightly in the second period. Calm down to stabilize the third trimester.

For the remaining variables represented by money supply, agricultural credit interest rates, and exchange rates, the occurrence of a "monetary policy shock" is one standard deviation, and the response of agricultural investment to the shock is always negative until the end of the year period according to table [5]:

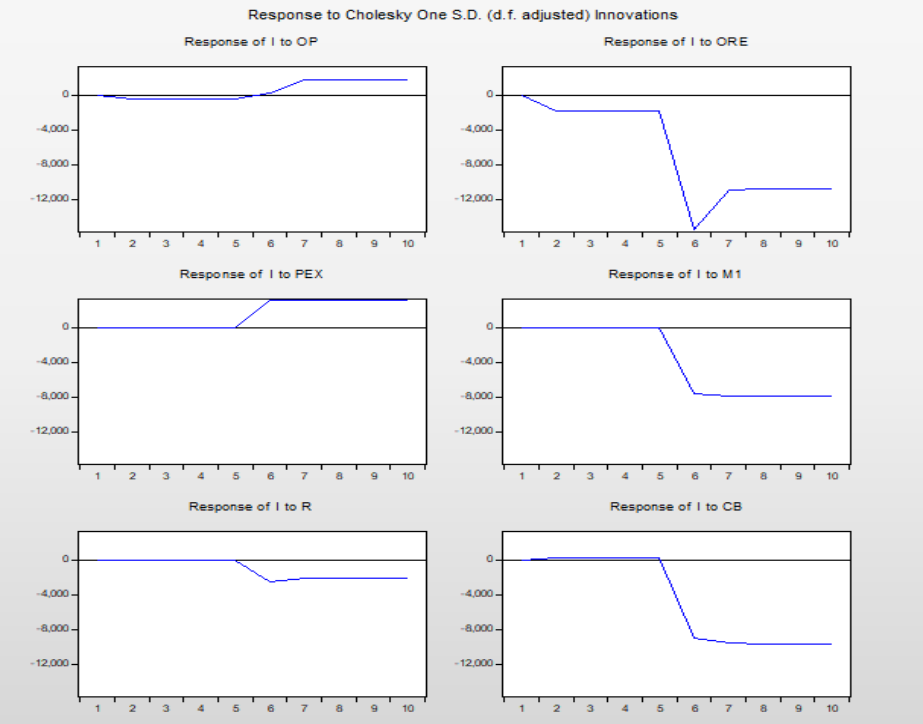

Figure [5]: the agricultural investment response to a shock with one standard deviation in the studied variables

Source: prepared by the researcher based on the outputs of the EVIEWS 10 statistical program

Table (5): The agricultural investment response to a shock with one standard deviation in the studied variables

CB	R	M1	PEX	ORE	OP	I	Period
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	56738.80	**1**
3194.016	2916.859	1052.247	9488.376	529.2743	-1316.286	100557.3	**2**
-619.2417	7836.301	2222.831	11135.22	2337.776	4813.429	129453.9	**3**
-5794.183	13242.37	3621.380	9710.352	5677.245	14309.01	144723.7	**4**
-10661.45	18781.19	4092.109	12620.70	4149.792	22583.31	149275.9	**5**
-17015.15	23228.90	4693.360	17273.77	1412.537	27052.03	146129.1	**6**
-25342.70	25765.37	5564.745	19965.44	-1765.452	27593.22	137801.0	**7**
-34446.39	25511.37	6914.950	20791.53	-4937.182	24784.37	126411.8	**8**
-43250.68	22369.65	8701.739	20533.24	-8657.847	19930.51	113594.6	**9**
-50911.98	16698.22	10925.05	19539.86	-12407.44	14411.09	100488.9	**10**
Cholesky Ordering: I OP ORE PEX M1 R CB							

Source: prepared by the researcher based on the outputs of the EVIEWS 10 statistical program

Table [5] showed results of the analysis of the components of the variance of the variables of the agricultural investment model, which comes from the shocks of the fiscal and monetary policies. Table [6] shows that the agricultural investment variable [I] explains up to [100%] the variance component of I in the first year for a one standard deviation shock in the same variable, and then gradually decreases. After 10 years it will be [90.26196%]. For the oil price variable OP, the shock by the standard deviation of agricultural production does not explain the component of the variance of variable I in the first year, but it does in the second year. It explains [0.01288%] of the variance component and continues to increase until reaching the 10th year [2.041287%] of the contrast component. For the oil revenue variable ORE, it does not explain any variance component of variable I in the first year, but it continues to increase until the 10th year, increasing to [0.185434%] of the variance component. For the public expenditure variable PEX, the variance component of variable I cannot be explained in the first year, and it continues to increase in the fifth year, reaching [0.620385%] of the variance component, and the yearly value reaches [1.419374%]. Another variable is the money supply M1, In the first year, no component of the variance in variable I was explained after a 1 standard deviation shock in agricultural investment, but in the second year, the component of variance was explained by [0.008236%], reaching [0.196201%] In the 10th year. Another variable refers to the agricultural loan interest rate R. In the first year, there was no variance component explaining the first variable due to the standard deviation shock in agricultural investment, but in the second year, the variance component was [1.910889%] achieved in the 10th year. Another variable is the CB exchange rate in the first year, it did not explain the variance component of variable I after the standard deviation shock of agricultural investment at all, but in the sixth year, it explained [0.453651%] of the variance component, and the variance component was [3.984857%] per year. Figure [5] shows the ANOVA for each variable as well as all other variables.

Table (6) Components analysis of variance for the agricultural investment shock

CB	R	M1	PEX	ORE	OP	I	S.E.	Period
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	100.0000	56738.80	**1**
0.075889	0.063290	0.008236	0.669716	0.002084	0.012889	99.16790	115943.6	**2**
0.034796	0.229830	0.019882	0.703545	0.018886	0.081858	98.91120	174415.0	**3**
0.085051	0.472422	0.036909	0.593837	0.073146	0.442324	98.29631	227857.1	**4**
0.209394	0.793412	0.047641	0.620385	0.073233	0.981342	97.27459	274539.2	**5**
0.453651	1.153640	0.058753	0.776785	0.057999	1.492227	96.00695	314020.4	**6**
0.907251	1.499978	0.074024	0.969705	0.050217	1.859191	94.63963	346551.8	**7**
1.637112	1.763792	0.098334	1.148555	0.060910	2.047782	93.24351	372872.9	**8**
2.670536	1.901536	0.136811	1.299922	0.102811	2.089371	91.79901	394053.9	**9**
3.984857	1.910889	0.196201	1.419374	0.185434	2.041287	90.26196	411230.0	**10**
Cholesky Ordering: I OP ORE PEX M1 R CB								

Source: prepared by the researcher based on the outputs of the EVIEWS 10 statistical program

Conclusions

The study demonstrated that adverse economic shocks have a detrimental effect on the agriculture sector, which exacerbates when inadequate policies are implemented in response to these shocks, hence validating the research hypothesis. The severity of the structural imbalances, the lack of an economic philosophy, and the uneven integration with the outside world left the Iraqi economy susceptible to shocks and fostered their consequences on the economy, society, and environment. One of the main causes of economic shocks in Iraq is outside influences. The shock resulting from oil prices is a prime illustration of these external variables. As the primary mechanism for converting the

nation's oil wealth into economic outcomes and allocating them to the people's benefit, fiscal policy is vital in Iraq. However, the volatility of oil revenues presents a challenge to fiscal policy in that it keeps revenue fluctuations from being translated into changes in public spending, which could cause economic instability and decrease the effectiveness of government spending. The lack of foundational structures that maximize production levels and the economic efficiency of both public and private projects, as well as their legal protection, contributed to the weak structure of the private sector in Iraq, which was reflected in its low contribution to economic activity and lack of diversification in its production base. Oil revenues, public spending, and gross domestic product are the main economic channels through which oil price shocks spread to the agricultural sector, as they are the main drivers of most other sectors and activities.The transmission channel of the impact of the economic shock of the decline in oil prices on the Iraqi agricultural sector from 2004 to 2020 amplified the negative impact on the agricultural sector. Agricultural services were provided, investment projects were stopped, unemployment increased, income levels declined, and the performance of Iraq's agricultural sector was negatively affected

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