An economic and econometric study to show the role of spending policy and its impact on the accumulation of agricultural capital in Iraq for the period (1990-2023(

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Abstract:
this study aimed to identify the extent of development and impact of some spending policies affecting the accumulation of Agricultural money during the study period The regression equation was used in estimating the relationship between the variables and the use of the program (Eviwes 12) in the analysis of data and the results showed the lack of significance of the interest rate in the short term, but in the long term there is a negative moral effect of the interest rate on the accumulation of agricultural capital and also showed a positive non-significant effect of the exchange rate on the accumulation of capital This study has recommended the need to activate the agricultural sector and the introduction of modern technologies and the use of advanced machinery and machinery and stay away About the traditional methods of production processes, and rationalizing spending operations for fear of waste and increasing spending directed to the agricultural sector as one of the important sectors that are related to the lives and livelihood of citizens.

Keywords : interest rate, exchange rate, accumulation of agricultural capital.

Introduction:

Are considered one of the main determinants in the economy of countries as they are important tools in reallocating resources between public and private consumption and between productive resources and consumer goods, as public spending is considered one of the important factors in achieving economic stability through direct contribution to the production process. Spending policy shows the role of the state in achieving economic goals, so spending can be defined as (the sum of expenditures made by the state during a specific period of time and in order to satisfy the needs of the society determined by the state). It is also considered an important means to increase the productive capacity of society and is one of the economic goals that lead to the development of the national economy. Spending takes different forms, whether allocations, loans or government support, which leads to an increase in national income.

Research problem:

Most developing countries, including Iraq, suffer from low growth rates in agricultural capital accumulation, as well as from insufficient spending directed to this important pioneering sector, whether government spending or the private sector, which has negatively affected growth in this sector and increased its contribution to increasing national income and raising the level of per capita income, and thus increasing the country's economic growth.

Importance of research:

The importance of the research lies in knowing the extent of the impact of spending

policies on the accumulation of agricultural capital and the path of spending in general and spending on the agricultural sector in particular in Iraq. Spending is considered a driver of the agricultural sector as it contributes to increasing the country's production capabilities, which leads to increased economic growth.

Research hypothesis:

The research is based on the hypothesis that there is a positive and direct relationship between spending policies and the accumulation of agricultural capital in Iraq for the period (1990-2023.(

Research objectives:

.1 Studying the development of economic variables affecting the accumulation of agricultural capital in order to know growth rates of these variables.

.2 Study, interpret and evaluate the relationship between some spending policies and the accumulation of agricultural capital in Iraq for the period (1990-2023.(

Previous studies:

-1Al-Kinani (2018) Analysis of the relationship between investment spending and total fixed capital formation in Iraq for the period (1980-2016) The study aimed to use Kranger's causation to analyze the causal relationship between spending and fixed capital formation, and the results showed that small investment projects cannot be relied upon in the process of economic development. (1(

-2Al-Khafaji (2019) The impact of public spending policy and its reflection on investment in Iraq for the period (1994-2017) The study aimed to know the strength of the relationship between public spending and investment in Iraq during the study period and the results showed that spending policy is an important tool to achieve economic goals and address the imbalance resulting from the economic cycle. (2(

-3Zaabalawi, Shuaib (2021) The impact of government spending on agricultural growth in Egypt The study aimed to assess the impact of agricultural public spending on Egyptian production and study the direction of agricultural growth, and the study concluded that farmers lack modern technology in agricultural production with their small areas and weak capabilities. (3(

-4Pornkel-Tongpan (2007) The impact of government spending on output prices in the agricultural sector in Thailand The study aimed to find out the extent of the impact of government spending on output prices in the agricultural sector and the study concluded to an increase in GDP and an increase in the level of prices and interest rate while the real exchange rate fell. (4(

Theoretical framework

The concept of spending policy:

The spending policy plays an important role in determining the rates of economic growth, which shows the extent of the state’s desire to achieve economic development and push the wheel of growth forward. It works primarily on developing financial and human resources. Growth in these sectors will not occur except through spending policies. Therefore, the spending policy expresses the general economic structure of the country, shows the level of development, and expresses the contribution of the productive sectors to the growth of the total supply of consumer goods in the economy (5). Spending is defined as cash amounts that come out of the state’s financial assets with the aim of satisfying public needs during a specific period. It is also defined as the total sums of money that a

person spends to meet public needs (6). Al-Mahrazi defined spending as the sums of money that the state disburses to achieve a public benefit (7). Cash spending is considered one of the best methods of spending policies carried out by the state, and is due to many reasons, the most important of which are:

.1 The use of money in the spending process is what the modern financial system requires according to the rules and regulations that meet the general needs of individuals.

.2 Not forcing individuals to perform their duties without pay, because this conflicts with human freedom and rights.

.3 In-kind spending raises many administrative and organizational problems due to the difficulty of calculating it or giving advantages to some individuals over others (8(

Features of spending policies:

Spending policies have many features, the most important of which are:

.1 Spending policies are highly volatile and are responsible for the fluctuation in GDP because: Changes in the capitalist sector are faster than changes in the service and consumer sectors (9(

.2 Spending policy is the main determinant of interest rate, which affects the monetary policy of the country.

.3 Spending policy is considered one of the main determinants of national

.4 Demand and spending (10.(

.5 The spending policy is considered one of the basic factors in economic development (10.(

.6 The continuous increase in population numbers and the lack of interest in human energy led to the migration of skilled workers to other countries that accommodate them and spend large sums of money on them (11(

.7 The spending policy is a major tool of the country's financial policy, which aims to reduce unemployment and achieve economic stability for the country (12.(

Basic spending categories: It is divided into several sections.

-1Administrative division of pending:

The administrative division of spending is considered one of the oldest types of division. According to this division, state agencies can know the portion of public resources allocated to them, and in light of that, they can draw up their spending policy (13.(

-2Economic division of tunnels:

It is divided into two sections:

-Current expenses: These are repeated periodically to ensure that the state's affairs run smoothly and include payments and subsidies.

-Capital expenditures: These expenditures aim to develop national wealth and include loans and investments.

- 3Spending in terms of regularity: This type is divided into two parts:

Regular expenses: These are expenses that are repeated periodically and regularly, such as employee salaries and infrastructure maintenance expenses.

-Regular irregular expenses: These expenses do not recur periodically and irregularly, such as expenses allocated for emergencies, natural disasters, and wars (14(

-4Spending in terms of effects: It is divided into several sections.

-Actual expenditures: This includes the expenditures made by the state in exchange for obtaining money from the production process, such as spending on workers in the production process from salaries and bonuses.

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-Transfer expenditures: These are expenditures made by the state to obtain goods and services or provide grants to the disabled (15(

Spending is also divided into two parts: (16(

-Productive spending: is the spending directed to the productive sector in the field of industry and agriculture, and it amounts to 40% of the country's budget.

-Unproductive spending: is spending directed to service sectors such as health, education and culture.

The reality of the development of study variables:

-1Agriculturalcapital accumulation:

Capital accumulation is defined as the sum of what producers keep of productive assets during a period exceeding one year. Production assets are divided into two parts: tangible, such as land reclamation, and intangible, such as computer programs used in production. Net capital accumulation is considered one of the important indicators in the country's economy because it shows the distribution of the capital stock among the productive sectors. From Table (1), we notice that there is a fluctuation in the accumulation of agricultural capital, as the average during the study period 1990-2023 reached (22375.19) million dinars, and the value of agricultural capital accumulation ranged between a maximum of (79285.9) million dinars in 2018 and a minimum of (1258.7) million dinars in 1993, as we also notice a decrease in the accumulation of fixed capital in the agricultural sector in the study years and the growth rate was (10 %) and the percentage of contribution of agricultural capital accumulation to the total was high from the beginning and then began to decline as shown in the following table

Table (1) Total and agricultural capital accumulation and contribution percentage in Iraq (million dinars) for the period (1990-2023)

Contribution rate% (3)	Agricultural capital accumulation in million dinars (2)	Capital accumulation for all sectors in million dinars (1)	Year	rate Contribution % (3)	accumulation head the money Agricultural By the million Dinar (2)	accumulation head the money For all Sectors(1)	Year
0.088	6667.7	7530404.44	2007	45.89	2854.6	6220.052	1990
0.0075	1763.9	23240539.2	2008	180.0	3756.3	2086.248	1991
0.040	5429.9	13471242.3	2009	30.18	1729.5	5729.515	1992
0.0049	1303.4	26252776.8	2010	5.24	1258.7	23994.302	1993
0.13	38909.5	28234992.6	2011	9.91	4629.8	46685.041	1994
0.015	5964.8	38139871	2012	7.31	8470.4	115867.7	1995
0.025	14195.9	55036676.2	2013	3.89	1859.5	47747.049	1996
0.14	79376.7	55837402.9	2014	2.83	7161.8	252849.116	1997
1.067	54081.9	5065057.75	2015	1.29	5325.9	412065.077	1998
0.074	21344.5	28703209.2	2016	0.72	5464.8	754492.592	1999
0.089	32850.7	36582246.3	2017	0.48	7093.4	1465252.69	2000
0.26	79285.9	30459416.1	2018	0.38	9731.8	2531440.92	2001

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0.177	68425.4	38465471.2	2019	0.08	1861.4	2199076.75	2002
0.191	72324.7	37859439	2020	0.10	1934.5	1875596.54	2003
0.192	66648.3	34653977	2021	0.05	1530.7	2857807.02	2004
0.189	69654.8	36784298	2022	0.017	1826.8	10182362.2	2005
0.209	73896.3	35276845	2023	0.012	2142.4	16911154.7	2006
	22375.19	16802479.2	Averag				
	%10		Growth				

Source: (1) (2) Republic of Iraq - Ministry of Planning - Central Statistical Organization - National Accounts.

(3)The researcher worked using Excel.

-2Interest rate and exchange rate

The interest rate is the value that is determined by the Central Bank as an indicator of the economic sector and through which the value of the loan for any country is determined and the high interest rate leads to a decrease in the level of consumption as well as the impact on the volume of investments The exchange rate is the value of the local currency relative to another foreign currency, and thus it represents a means of linking the local economy with other economies We note from Table (2) The nominal interest rate was high in the early years, reaching (23%) and then began to decline until it reached (6%) in recent years, Interest rates have decreased due to the circumstances that Iraq has gone through due to the international blockade, economic sanctions, and internal monetary policies, as well as the weakness of the banking sector. and the average interest rate reached (13.08%) and the growth rate of the interest rate reached (-4%), while the exchange rate reached its lowest limit (3.33) in 1990 and the highest value reached (1450) in 2022, The state adopted a policy of adjusting the exchange rate of the Iraqi dinar against the US dollar at the end of 2020, as the value of the local currency was reduced in the 2021 budget by making it equivalent to (1450) dinars instead of (1118) dinars against the US dollar. The aim of this was to reform the country's economic situation and work to stimulate economic sectors, including the agricultural sector, pay off Iraq's external debts, and reduce the state's general budget deficit due to growing expenditures. while the growth rate reached (8%(

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Table (2) shows the interest rate, exchange rate in Iraq for the period (1990-2023)

Exchange rate (3)	interest rate % (1)	Year	Exchange rate (3)	price Nominal interest % (1)	Year
1255	14	2007	3.33	23	1990
1271	8	2008	10	23	1991
1015	10	2009	21	23	1992
1170	8	2010	74	20	1993
1170	8	2011	458	20	1994
1166	8	2012	1674	20	1995
1166	8	2013	1170	20	1996
1166	8	2014	1471	18	1997
1167	6	2015	1620	18	1998
1182	6	2016	1972	18	1999
1184	6	2017	2393	16	2000
1183	6	2018	1929	16	2001
1182	6	2019	1957	16	2002
1192	8	2020	1243	16	2003
1450	8	2021	1453	16	2004
1450	8	2022	1472	14	2005
1316	8	2023	1475	14	2006
1208	13.08	Average			
%8	% -4	Growth			

Source: Interest Rate_ Agricultural Cooperative Bank.
Exchange rate: Central Bank of Iraq_ Department of Studies and Planning.

Results and Discussion:

Statistical and econometric analysis: For proving the research hypothesis, the variables that affect the accumulation of agricultural capital were tested by multiple linear regression and the standard program Eviwes, and self-regression was used for distributed deceleration ARDL Because part of the variables stabilized at the level and the other part stabilized at the first difference in the unit root test, the augmented Dickey-Fuller test (ADF). and the logarithmic function model as follows:

Lny=b0+b1LnX1+b2Lnx2

LnY = Natural logarithm of agricultural capital accumulation (dependent variable(

)Independent variables(

Lnx1=Normal Interest Rate Logarithm

lnx2 = Natural exchange rate logarithm

And that the parameter of the independent variable interest rate (LnX1) was not significant in the short term, but in the long term it was significant and negative, as it reached (-2.803), and this means that there is an inverse relationship between the interest rate and the accumulation of agricultural capital, meaning that increasing the interest rate by (1%) will lead to a decrease in the accumulation of agricultural capital by (2,803%) and was significant at a significant level of (5%) It conformed to economic logic.

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And that the parameter of the independent variable exchange rate (LnX2) amounted to (0.659) and this means that there is a positive relationship between the exchange rate and the accumulation of agricultural capital, that is, the increase in the exchange rate by (1%) will lead to an increase in the accumulation of agricultural capital by (0.659) and came in conformity with the logic of economic theory and was significant at a significant level (5%(

The value of the coefficient of determination reached 82%, meaning that the percentage of the influence of the independent variables on the dependent variable reached 82 % and 18% are variables that affected the model but were not included in the model and their effect was absorbed by the random variable. As for the calculated value of the (F) test, it equals (15.9) and the probability level equals (0.000), which is less than (0.05) and even less than (0.01), which means that the estimated model is significant as a whole and can be relied upon in the process of planning and future prediction .

Table (3) Results of the initial estimation of the ARDL model

Dependent Variable: LNY
Method: ARDL
Date: 02/17/25 Time: 20:42
Sample (adjusted): 1993 2023
Included observations: 31 after adjustments
Maximum dependent lags: 3 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (3 lags, automatic): LNX1 LNX2
Fixed regressors: C
Number of models evaluated: 48
Selected Model: ARDL(1, 3, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNY(-1)	0.239969	0.143287	1.674737	0.1075
LNX1	1.340381	0.994602	1.347656	0.1909
LNX1(-1)	-1.752896	1.175106	-1.491693	0.1494
LNX1(-2)	2.204115	1.210265	1.821184	0.0816
LNX1(-3)	-3.922712	0.983455	-3.988704	0.0006
LNX2	1.447304	0.551241	2.625537	0.0151
LNX2(-1)	-0.946106	0.354396	-2.669625	0.0137
C	8.752061	2.649823	3.302886	0.0031

R-squared	0.829308	Mean dependent var	9.173238
Adjusted R-squared	0.777358	S.D. dependent var	1.475783
S.E. of regression	0.696347	Akaike info criterion	2.331699
Sum squared resid	11.15269	Schwarz criterion	2.701761
Log likelihood	-28.14134	Hannan-Quinn criter.	2.452330
F-statistic	15.96366	Durbin-Watson stat	2.088741
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

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Table (4) Results of the initial estimation of the ARDL model

ARDL Long Run Form and Bounds Test
Dependent Variable: D(LNY)
Selected Model: ARDL(1, 3, 1)
Case 2: Restricted Constant and No Trend
Date: 02/17/25 Time: 20:45
Sample: 1990 2023
Included observations: 31

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.752061	2.649823	3.302886	0.0031
LNY(-1)*	-0.760031	0.143287	-5.304243	0.0000
LNX1(-1)	-2.131112	0.460719	-4.625623	0.0001
LNX2(-1)	0.501198	0.267920	1.870704	0.0742
D(LNX1)	1.340381	0.994602	1.347656	0.1909
D(LNX1(-1))	1.718597	1.161084	1.480167	0.1524
D(LNX1(-2))	3.922712	0.983455	3.988704	0.0006
D(LNX2)	1.447304	0.551241	2.625537	0.0151

* p-value incompatible with t-Bounds distribution.

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNX1	-2.803980	0.424444	-6.605235	0.0000
LNX2	0.659445	0.352391	1.871344	0.0741
C	11.51540	2.566637	4.485570	0.0002

EC = LNY - (-2.8040*LNX1 + 0.6594*LNX2 + 11.5154)

Output Eviwes 12

Table (5) Breusch -Godfrey Serial Correlation (LM) Test for autocorrelation

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.158205	Prob. F(2,21)	0.8547
Obs*R-squared	0.460148	Prob. Chi-Square(2)	0.7945

Eviwes 12 outputs

Using the Breusch-Godfrey Serial Correlation LM test, Table (5) showed that the model does not suffer from the problem of autocorrelation, as the value of the statistic (F) reached (0.158) at a probability level of (0.640), which is a probability level greater than (5%), from which we can accept the null hypothesis, i.e. the absence of a problem of autocorrelation between the residuals .

Heteroskedasticity Test table (6)

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	1.299213	Prob. F(20,9)	0.3548
Obs*R-squared	22.28224	Prob. Chi-Square(20)	0.3254
Scaled explained SS	1.864290	Prob. Chi-Square(20)	1.0000

Eviwes 12 outputs

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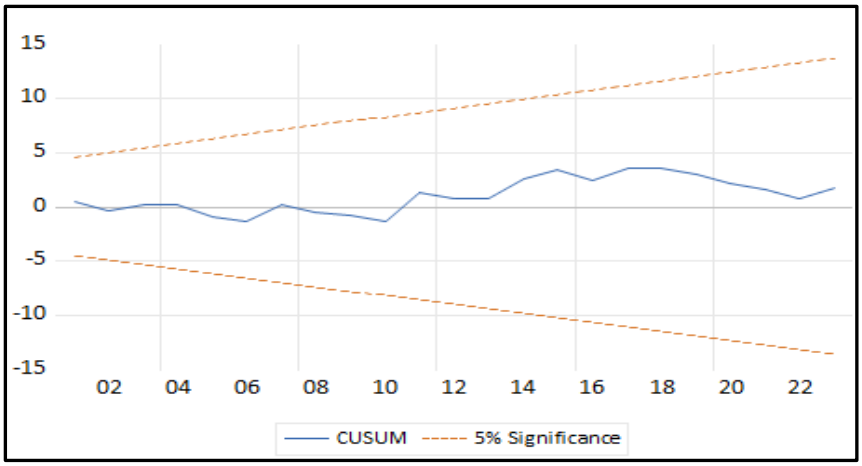

Cusum (1) to test the stability of the model.

The parameters under study were significant at the level of 5%, where the parameters were stable within the critical limits, as shown in the previous figure.

Conclusions:

1- The results confirmed the study hypothesis regarding the impact of spending policies on the accumulation of agricultural capital.

2- We conclude from the estimation of the results of the standard model that the estimated model has met the economic and statistical standards, as the estimated t value was significant for all independent variables, and the model was also significant as a whole , as the estimated (F) value reached (15.96), which is greater than its tabular value. As for the coefficient of determination R 2 , it reached (0.82), and it shows the extent of the influence of the independent variables on the dependent variable, and the remaining (0.18) are variables that affected the model and were not included in the model, and their effect was absorbed by the random variable.

3- The results of the analysis showed that the relationship between the dependent variable (accumulation of agricultural capital) and the independent variable (interest rate) was of a moral and negative impact in the long term, while the independent variable (exchange rate) had a moral and positive impact and came in conformity with the economic logic

Recommendations:

1- This study recommended the necessity of activating the agricultural sector, introducing modern technologies, using advanced machines and equipment, and moving away from traditional methods in production processes.

2- Rationalizing spending operations for fear of waste.

3- Increasing spending on the agricultural sector, as it is one of the important sectors related to the lives and livelihoods of citizens.

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