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An Economic Study to Measure the Impact of Some Spending Policies on Agricultural Capital Accumulation for the Period (1990-2023)

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Abstract. The spending allocated to the agricultural sector in the general budget is one of the important financial policy tools responsible for developing this important sector. In light of this, this study aimed to identify the extent of development and impact of some spending policies affecting the accumulation of agricultural capital during the study period. The regression equation was used to estimate the relationship between the variables and the (Eviwes 12) program was used to analyze the data. The results showed a positive significant effect of agricultural GDP, trade openness and inflation on the accumulation of agricultural capital. It also showed a negative significant effect of the agricultural labor force and interest rates on the accumulation of capital. This study recommended the necessity of activating the agricultural sector, introducing modern technologies, using advanced machines and equipment, moving away from traditional methods in production processes, rationalizing spending operations for fear of waste and increasing spending directed to the agricultural sector as it is one of the important sectors related to the lives and livelihoods of citizens.

Keywords: Agricultural GDP, Agricultural labor force, Agricultural trade openness, Agricultural capital accumulation, Exchange rate, Government support, Interest rate, Inflation.

1. 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.

1.1. 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.

1.2. 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, It causes economic growth to increase.

1.3. Research Hypothesis

The study is predicated on the idea that, for the years 1990–2023, expenditure policies and the growth of agricultural capital in Iraq are positively and directly correlated.

1.4. Research objectives

1. Studying the development of economic variables affecting the accumulation of agricultural capital in order to know the trends and growth rates of these variables.
2. Study, interpret and evaluate the relationship between some spending policies and the accumulation of

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agricultural capital in Iraq for the period (1990-2023).

1.5. Previous Studies

1- Al-Ghanai (2015) The impact of public spending policy on Libyan economic growth for the period (1995-2009). The main objective of this study is to know the extent of the impact of public spending on economic growth. The study concluded that the increase in the size of public spending led to an increase in the size of the gross domestic product, and this increase has a positive impact on growth rates.

2- Rahal, Hadda (2019) The role of government spending on the agricultural sector in achieving food security in Algeria for the period (2001-2018). The objective of the study is to determine how much government expenditure affects the farming sector. The study concluded that Algerian agriculture cannot meet the local demand for agricultural products, so Algeria resorts to importing from abroad.

3- Al-Ghanawi, Al-Kubaisi (2024) Government investment spending and its role in the agricultural sector for the period 2004-2021. The aim of the study is to elucidate and assess the degree to which expenditures affect the farming sector. The researcher concluded that there is a clear shortage in the allocations directed to this sector and a weakness in the performance of financial policy.

2. THEORETICAL FRAMEWORK

2.1. 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 and 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 (Ministry of Planning, 2012, p. 4). 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 of time. It is also defined as the total sums of money that a person spends to meet public needs (Karim, 2010, p. 30). Al-Mahrazi defined spending as the sums of money that the state disburses to achieve a public benefit (Mahrazi, 2003, p. 68). 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 (Bashir, 2016, p. 3)

2.2. 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 (Rediger, 2008 , p383)
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 demand and spending (Al-Wadi and Al-Assaf, 2009, p. 120).
4. The spending policy is considered one of the basic factors in economic development (Al-Wadi and Al-Assaf, previous source).
5. 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 (Lrvin, 2009 , p725)
6. 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 (Al- Ayeb , 2010, p. 100).

2.3. Basic Spending Categories: It is Divided into Several Sections

2.3.1. Administrative division of spending

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 (Farhat, 2010, p. 272).

2.3.2. Economic 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 are expenditures that aim to develop national wealth and include loans and investments.

2.3.3. Spending In Terms of Regularity

This type is divided into two parts:

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

- Regular irregular expenses: These are expenses that do not recur periodically and irregularly, such as expenses allocated for emergency situations, natural disasters, and wars (Al-Ali, 2010, p. 119)

2.3.4. Spending 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.
- Transfer expenditures: These are expenditures made by the state to obtain goods and services or provide grants to the disabled (Shihab, 2004, 213).

2.3.5. Investment Expenses Include

- Investments made directly by the state.
- Investment assistance provided by the state.
- Additional capital expenditures.

2.3.6. Spending Is Also Divided into Two Parts

(Shihab, 1989, p. 21)

- 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.

2.3.7. The Reality of the Development of Study Variables

2.3.7.1. Agricultural Capital Accumulation

Capital accumulation is defined as the sum of what producers keep of productive assets during a period of time 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 (6), 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	180.05	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
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 rate				

Source: (1) (2) Republic of Iraq - Ministry of Planning - Central Statistical Organization - National Accounts.(3) The researcher worked using Excel

2.3.7.2. Agricultural GDP

Agricultural output is of great importance, coming after the oil sector and services in terms of relative importance. The average agricultural GDP during the study period (1990-2023) amounted to (4278.5) million dinars, fluctuating between a maximum of about (6195.9) million dinars in the year (2006) and a minimum of (2877.2) million dinars in the year (1991). As for The contribution of agricultural GDP to GDP, including oil, ranged between a minimum of (3.62%) in 2017 and a maximum of (26.93%) in 1991.

Table 2: Gross Domestic Product, Agricultural GDP, Annual Rate of Change and Relative Importance in Iraq (Million Dinars) for the period (1990-2023)

Contribution rate% (3)	Agricultural GDP (2)	Gross Domestic Product (1)	Year	rate Contribution % (3)	Output Local Agricultural	Output Local Total (1)	Year
9.23	4479.9	48510.6	2007	11.60	3447.8	29711.1	1990
7.51	3889	51716.6	2008	26.93	2877.2	10682.1	1991
7.34	4020.7	54721.2	2009	24.93	3531.9	14163.5	1992
6.98	4036.7	57751.6	2010	18.92	3492.4	18453.6	1993
7.44	4739.9	63650.4	2011	19.52	3741	19164.9	1994
6.89	4941.4	71680.8	2012	21.39	4188.2	19571.2	1995
7.96	6123.8	76922	2013	20.70	4498.2	21728.1	1996
7.713	6000.6	77789.7	2014	15.69	4133.8	26342.7	1997
4.74	3787.4	79812.2	2015	12.59	4475.1	35525	1998
4.16	3775.7	90746.5	2016	12.42	5188.3	41771.1	1999
3.62	3171.7	87480.5	2017	10.84	4589	42328.6	2000
4.17	3811.9	91311.2	2018	10.71	4644	43335.1	2001
3.62	3217.8	88840.5	2019	13.46	5432.6	40344.9	2002
4.18	3513.8	84014.2	2020	14.26	3850.3	26990.4	2003
4.11	3634.2	88356.3	2021	10.86	4521.8	41607.8	2004
4.25	3856.7	90567.4	2022	13.67	5939.6	43438.8	2005
4.16	3723.9	89435.2	2023	12.94	6195.9	47851.5	2006
	4278.5	53492.8	Average				
	%0.25	%3	Growth				

Source: (1) (2) Republic of Iraq - Ministry of Planning - Central Statistical Organization. (3) From the researcher's work based on the Excel program , while the growth rate was extracted from the researcher's work based on the Eviwes program.

2.3.7.3. Agricultural Labor Force

Table (2) shows the total number of workers (in thousand workers) at the level of Iraq, which averaged about (6,832,000) workers during the period 1990-2023, where their number ranged between a maximum of (12,356,000) workers in 2022 and a minimum of (2,991,000) workers in 1993 during the period (1990-2023). Perhaps the increase in the number of workers in Iraq is increasing, and the reason for this increase is due to the increase in the population. We also find that the number of workers in the agricultural sector is increasing, ranging from a maximum of (2,110,000) workers in 2006 to a minimum of (486,000) workers in 1990, while the average number of workers in the agricultural sector was (1,387,000) workers . The growth rate was 3.4%.

Table 3: Total labor force, agricultural labor force, annual rate of change, and contribution percentage in Iraq (thousand workers) for the period (1990-2023).

Contribution Rate% (4)	Annual Rate of Change% (3)	Agricultural Labor Force (In Thousand Workers) (2)	Total Labor Force (In Thousand Workers) (1)	Year	Contribution Rate% (4)	An Average Change Annual % (3)	Powers the Worker Agricultural Per Thousand Workers (2)	Powers the Worker College of a Thousand Workers (1)	Year
23.43	-44.07	1180	5036	2007	15.59		486	3120	1990
36.05	57.85	1863	5167	2008	17.05	5.16	512	3000	1991
35.65	1.37	1889	5297	2009	17.65	6.19	543	3077	1992
28.87	2.61	1938	6712	2010	19.37	6.66	579	2991	1993
20.68	3.02	1997	9651	2011	20.13	5.69	612	3041	1994
17.54	-7.55	1846	10522	2012	21.20	7.00	655	3091	1995
17.23	0.65	1858	10778	2013	22.72	8.87	713	3140	1996
18.23	7.77	2002	10977	2014	23.97	7.10	764	3187	1997
18.44	1.23	2027	10987	2015	27.20	15.08	880	3233	1998
17.12	-7.09	1883	10995	2016	22.47	1.70	894	3980	1999
17.72	5.39	1985	11198	2017	23.52	8.81	973	4138	2000
17.25	0.69	1999	11584	2018	23.15	1.08	984	4250	2001
14.17	-17.39	1651	11645	2019	25.27	12.53	1107	4381	2002
14.59	4.94	1733	11869	2020	33.59	36.91	1516	4512	2003
14.57	0.23	1737	11915	2021	22.84	-30.02	1061	4643	2004
14.49	3.15	1791	12356	2022	32.15	44.73	1535	4774	2005
15.37	4.14	1866	12131	2023	43.02	37.46	2110	4905	2006
		1387	6832	Average					
		4.3%		Growth rate					

Source: (1) (2) Republic of Iraq - Ministry of Planning - Central Statistical Organization (3) (4) Researcher's work based on Excel

2.3.7.3. Trade openness

(3) shows a decrease in the rate of agricultural trade openness from (1,519) in 1990 to (0,543) in 1991. It continued to decline for the nineties as a result of the lack of trade exchange between Iraq and the countries of the world due to economic sanctions. The decline in the rate of trade openness also appears after 2003. The reason for this is the decline in the volume of agricultural exports resulting from the decline in the volume of agricultural production in the first place. The year 2007 witnessed a noticeable increase in the rate of agricultural trade openness, reaching (1045) and it continued to rise until the end of the time series, recording the highest rate of the indicator in 2018 , reaching (16672). This comes as a result of the increase in the volume of agricultural imports, which is equivalent to a decrease in the agricultural GDP. As for the growth rate, it reached (41%), and the growth rate was high. This cannot be interpreted positively in favor of the Iraqi economy, but rather it is an economic dependency that indicates major risks that harm the Iraqi economy.

Table 4: Trade openness in Iraq for the period (1990-2023).

Agricultural Trade Openness (3)	Total Foreign Trade (3)	Gross Domestic Product (2)	Year	Openness Commercial Agricultural (3)	Total Commerce Foreign Agricultural (2)	Output Local Total (1)	Year
1045.029	506950	48510.6	2007	1.519	451.53	29711.1	1990
1684.326	871076	51716.6	2008	0.543	58.11	10682.1	1991
1098.485	601104	54721.2	2009	0.474	67.26	14163.5	1992
631.134	364490	57751.6	2010	1.594	294.2	18453.6	1993
2321.184	1477443	63650.4	2011	0.952	182.6	19164.9	1994
7465.012	5350980	71680.8	2012	1.046	204.9	19571.2	1995
4060.197	3123185	76922	2013	0.700	152.29	21728.1	1996
2506.441	1949753	77789.7	2014	0.359	94.8	26342.7	1997
8342.2	6658093	79812.2	2015	0.179	63.6	35525	1998
12859.13	11669209	90746.5	2016	0.237	99.3	41771.1	1999
13646.62	11938129	87480.5	2017	0.192	81.3	42328.6	2000
16672.73	15224071	91311.2	2018	0.222	96.5	43335.1	2001
1321.899	1174382	88840.5	2019	0.257	103.7	40344.9	2002
15437.79	12969934	84014.2	2020	0.734	198.3	26990.4	2003
14467.7	12783126	88356.3	2021	0.591	246.1	41607.8	2004
13542.89	12265439	90567.4	2022	0.415	180.5	43438.8	2005
14060.09	12574668	89435.2	2023	7.170	3431.4	47851.5	2006
3858.23	3279648	53492.8	Average				
41%			Growth				

Source: (1) (2) Ministry of Planning - Central Statistical Agency.(3) From the researcher's work, column (2) / column (1) * 100

2.3.7.5. Government Support

In light of Table (4), it is clear that the amounts of government support for the Iraqi agricultural sector were characterized by an increase, as the average government support in the period (1990-2023) reached (131130.7) million dinars, where the highest value of government support was in 2012, which amounted to (554495) million dinars, and the lowest value was in 1997, where it amounted to (1.5) million dinars, while the growth rate was (4.8%), and the percentage of government support contribution to the allocations for the agricultural sector was It fluctuated and began to decline since the beginning of the period until it reached its lowest level in 1997, when the contribution rate reached (0.01) %. This clearly indicates the weakness and decline of the relationship between government support and allocations directed to this sector. As for its highest level, it was in 2007, when the contribution rate was (83.85%).

Table 5: The size of government support to the total allocations for the agricultural sector (million dinars) for the period (1990-2023).

Contribution Rate% (3)	Government Support (Million Dinars) (2)	Total Allocations for The Agricultural Sector (1)	Year	Rate Contribution % (3)	Support Government (Million Dinars) (2)	Sector Allocations Agricultural 1	Year
83.57	319164.3	381889	2007	10.90	109.5	1004	1990
25.93	391929.1	1511113	2008	4.20	90.4	2150	1991
15.74	167284	1062237.4	2009	9.43	385	4082.7	1992
15.25	249138.3	1633233.1	2010	5.56	451.3	8104.9	1993
23.59	545267.3	2310672.4	2011	1.30	129.6	9950.8	1994
23.55	554495.4	2354542.3	2012	0.10	25	22786.8	1995
13.95	340445.9	2440258.4	2013	0.04	5.4	11106.5	1996
8.24	230478.9	2795109.1	2014	0.009	1.5	16576.4	1997
12.72	231599.5	1820750	2015	0.20	52	25619	1998
6.76	118237.9	1748322	2016	0.76	349.3	45419	1999
24.21	77427.3	319706.3	2017	34.71	21408.9	61666.3	2000
0.29	172450.6	58711346	2018	16.03	17237.6	107472.3	2001
0.19	140288.7	71898768	2019	18.68	28295.9	151436.8	2002
1.28	136759.3	10634734	2020	13.18	27808.9	210986	2003
0.30	129115.8	41661865	2021	2.58	7003.7	270535	2004
0.19	104779.2	53822957	2022	36.47	99517.4	272863	2005
0.24	116947.9	47742411	2023	71.91	229764.3	319477	2006
	131130.7	8952680	Average				
	%0.22	%2.5	Growth				

Source: Ministry of Planning - Central Statistical Agency - National Accounts Department

2.3.7.6. Interest Rate, Exchange Rate, Inflation Rate

We note from Table (6) that the nominal interest rate was high in the early years, reaching (23%), then it began to decline until it reached (6%) in recent years. Also, the inflation rate reached its highest level (456.9) in the year (1994) and its lowest level was (0.10) in the year (2016). The average interest rate reached (13.08%), the average inflation rate reached (49.93), the growth rate of the interest rate reached (-4%), and the growth rate of inflation rates reached (-17%). As for the exchange rate, it reached its lowest level (3.33) in the year 1990 and its highest value reached (1450) in the year 2022, while the growth rate reached (8%).

Table 6: shows the interest rate, exchange rate and inflation rate in Iraq for the period (1990-2023).

Exchange Rate (3)	Inflation Rate% (2)	Interest Rate % (1)	Year	Exchange Rate (3)	An Average Inflation % (2)	Price Nominal Interest % (1)	Year
1255	30.9	14	2007	3.33	51.6	23	1990
1271	12.7	8	2008	10	180.8	23	1991
1015	8.3	10	2009	21	83.6	23	1992
1170	2.5	8	2010	74	208.2	20	1993
1170	5.6	8	2011	458	456.9	20	1994
1166	6.1	8	2012	1674	378.3	20	1995
1166	1.9	8	2013	1170	15.5	20	1996
1166	2.2	8	2014	1471	22.6	18	1997
1167	1.4	6	2015	1620	14.9	18	1998
1182	0.1	6	2016	1972	12.2	18	1999
1184	0.2	6	2017	2393	5.4	16	2000
1183	0.15	6	2018	1929	16.1	16	2001
1182	1.2	6	2019	1957	19.4	16	2002
1192	1.5	8	2020	1243	33.5	16	2003
1450	2.4	8	2021	1453	26.8	16	2004
1450	2.5	8	2022	1472	37.1	14	2005
1316	2.3	8	2023	1475	53.1	14	2006
1208	49.9	13.08	Average				
%8	% -17	% -4	Growth rate				

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

3. RESULTS AND DISCUSSION

Statistical and standard analysis: In order to prove the research hypothesis, a test of the variables that affect the accumulation of agricultural capital was conducted using multiple linear regression and the standard program Eviwes. Autoregressive distributed lag ARDL and the logarithmic function model were used as follows:

$$Lny = b_0 + b_1 LnX1 + b_2 Lnx2 + b_3 Lnx3 + b_4 LnX4 + b_5 LnX5 + b_6 LnX6 + b_7 LnX7$$

LnY = natural logarithm of agricultural capital accumulation (dependent variable)
(Independent variables)
Lnx1 = natural logarithm of agricultural GDP
Lnx2 = natural logarithm of agricultural labor force
Lnx3 = natural logarithm of trade openness
Lnx4 = natural logarithm of government support
Lnx5 = natural logarithm of interest rate
Lnx6 = natural logarithm of inflation
Lnx7 = natural logarithm of exchange rate

We note from Table (7) that the parameter of the independent variable, agricultural GDP ($_1$ Ln X), reached (3.361), which means that there is a direct relationship between agricultural GDP and agricultural capital accumulation, i.e., increasing agricultural GDP by (1%) will lead to an increase in agricultural capital accumulation by (3.361 %), and this variable was significant at a probability level of (5%).

The independent variable parameter is the agricultural labor force (LnX $_{2)}$. It reached (-5.416), This indicates that the accumulation of agricultural capital and the agricultural labor force have an inverse relationship; that is, a 1% increase in the agricultural labor force will result in a 5.416% decrease in the accumulation of agricultural capital. Economic logic does not support this. The reason is due to technical developments and the use of modern agricultural machinery and equipment and advanced irrigation systems, which in turn reduced the demand for labor, as well as the high wages of labor and the long time needed by human forces to do the work. The use of modern developments leads to dispensing with large numbers of agricultural labor (Al-Taie, 2010, 11). All of these factors negatively affected the accumulation of agricultural capital, and this variable was significant at the probability level (1%).

We observe that the independent variable's parameter, agricultural trade openness (LnX3), reached 0.258. This indicates that trade openness and the accumulation of agricultural capital are directly related; that is, a 1% increase in agricultural trade openness will result in a 0.258% increase in agricultural capital accumulation. This is consistent with economic logic, and the variable was significant at the 1% probability level.

The government support (LnX4) parameter variable was found to have reached 0.547. This indicates that there is a direct correlation between government support and the accumulation of agricultural capital, meaning that a 1% increase in government support will result in a 0.547 percent increase in agricultural capital accumulation. This made sense from an economic standpoint, and the significance of this variable did not appear, and the reason is that most of the government support does not go to the production process, but rather goes to other purposes or is sold in the markets.

And the independent variable parameter is the interest rate. (LnX5 reached (8,368-), which means that there is an inverse relationship between the interest rate and the accumulation of agricultural capital , i.e., an increase in the interest rate by (1%) will lead to a decrease in the accumulation of agricultural capital by (8,368- %). This is consistent with economic logic, i.e., the higher the interest rate, the lower the accumulation of agricultural capital. It was significant at a significance level of (5%).

The independent variable inflation's (LnX6) parameter reached 0.544, indicating a direct correlation between inflation and agricultural capital accumulation. That is, a 1% increase in inflation will result in a 0.544% increase in agricultural capital accumulation. This aligns with the economic theory, that is. inflation leads to higher prices, which encourages investors to invest and thus increase the accumulation of agricultural capital (Al-Khatib and Diab, 1435 AH, p. 262), and it was significant at a significance level of (1%).

The parameter of the independent variable, the exchange rate (LnX7) , was (-0.149), which means that there is an inverse relationship between the exchange rate and the accumulation of agricultural capital, i.e. an increase in the exchange rate by (1%) will lead to a decrease in the accumulation of agricultural capital by (-0.149), which was consistent with the logic of economic theory and was insignificant at a significance level of (5%).

the coefficient of determination was 92%, which indicates that the independent variables' percentage influence on the dependent variable was 92%, 8% of the variables that had an impact on the model but were not part of it were absorbed by the random variable. The determined value of the F test is 18.9, and the probability level is 0.000, which is less than 0.05 and even less than 0.01. This indicates that the estimated model is significant overall and can be trusted for future prediction and planning.

Table 7: Results of the initial estimation of the ARDL model.

Dependent Variable: LNY
Method: ARDL
Date: 10/08/24 Time: 15:47
Sample (adjusted): 1994 2023
Included observations: 30 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic): LNX1 LNX2 LNX3 LNX4 LNX5 LNX6 LNX7
Fixed regressors: C
Number of models evalulated: 8748
Selected Model: ARDL(4, 2, 2, 1, 1, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNY(-1)	-0.807884	0.196638	-4.108485	0.0026
LNY(-2)	0.156210	0.154329	1.012193	0.3379
LNY(-3)	0.801895	0.197694	4.056251	0.0029
LNY(-4)	0.416101	0.131149	3.172732	0.0113
LNX1	3.361361	1.066482	3.151822	0.0117
LNX1(-1)	3.466036	1.001047	3.462412	0.0071
LNX1(-2)	0.863883	0.743560	1.161820	0.2752
LNX2	-5.416206	1.233797	-4.389869	0.0017
LNX2(-1)	-2.859359	0.819994	-3.487047	0.0069
LNX2(-2)	-1.910186	0.977308	-1.954538	0.0824
LNX3	0.258540	0.095371	2.710889	0.0240
LNX3(-1)	-0.249900	0.149563	-1.670868	0.1291
LNX4	0.547012	0.272283	2.008981	0.0755
LNX4(-1)	0.450025	0.251190	1.791568	0.1068
LNX5	-8.368011	3.358139	-2.491860	0.0343
LNX5(-1)	-5.022658	1.284882	-3.909043	0.0036
LNX6	0.544119	0.186902	2.911251	0.0173
LNX6(-1)	0.329457	0.217291	1.516200	0.1638
LNX7	-0.149219	0.740170	-0.201600	0.8447
LNX7(-1)	1.322295	0.522224	2.532045	0.0321
C	24.78390	16.61829	1.491363	0.1701

R-squared	0.976859	Mean dependent var	9.241085
Adjusted R-squared	0.925435	S.D. dependent var	1.451006
S.E. of regression	0.396221	Akaike info criterion	1.182338
Sum squared resid	1.412919	Schwarz criterion	2.163176
Log likelihood	3.264933	Hannan-Quinn criter.	1.496116
F-statistic	18.99605	Durbin-Watson stat	2.191965
Prob(F-statistic)	0.000045		

The model does not have an autocorrelation problem, according to Table 7, which was obtained using the Breusch-Godfrey Serial Correlation LM test. The value of the statistic F) reached (0.475) at a probability level of (0.640), which is a probability level greater than (5%). Based on this, we can accept the null hypothesis, which states that there is no autocorrelation problem between the residuals.

Table 8: 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	0.474950	Prob. F(2,7)	0.6406
Obs*R-squared	3.584576	Prob. Chi-Square(2)	0.1666

Table 9: Heteroskedasticity Test for the hypothesis of non-constancy of homogeneity of variance

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

4. 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 (10.2), which is greater than its tabular value. As for the coefficient of determination R^2 , it reached (0.92), and it shows the extent of the influence of the

independent variables on the dependent variable, and the remaining (0.08) 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 (agricultural capital accumulation) and the independent variables (agricultural GDP, trade openness, government support, inflation) had a significant and positive effect and was consistent with economic logic, while the independent variable (interest rate) had a significant, negative and inverse effect and was consistent with economic logic, and the independent variable (agricultural labor force) had a negative and inverse effect and was not consistent with economic logic. The reason for this is that technical developments and the use of modern machines and equipment and advanced irrigation systems led to a decline in demand for labor.

5. 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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