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المجلة العراقية لبحوث السوق
وحماية المستهلك

THE EFFECT OF GOVERNMENTAL EXPENDITURE IN THE AGRICULTURAL DOMESTIC PRODUCTION IN IRAQ 1990-2020/ECONOMIC ANALYSIS

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ABSTRACT

the aim of the study is determining the effect of agricultural investment and operation expenditure in agricultural domestic product in Iraq for period(1990-2020) . The public expenditure is include of investment and operation expenditure .the investment expenditure increase production capacities it's so effect in agricultural growth ,but it's unsteady because economic and security state of the Country on other side reduction in public and private agricultural investment but the operation expenditure features with increase it's size because expansion the employment in public sector. It was obtained on time series data of variables in model after test stability of the variables in the first different.We used Autoregressive Distributed Lag (ARDL) to analysis the data to measurement the effect of operation and investment expenditure at agricultural domestic product ,the results explained when operation expenditure increase by% 0.01 due to reduce in agricultural product by%0.10 it's refer to un employment in ministry of agriculture and their institutions , The higher operational expenditure compared to investment expenditure, the last have significant on Agricultural product, when it's increase% 0.01 cause increase% 0.06 in agricultural product, we recommend, restructured public sector to reduce operation expenditure and raise investment, efficiency workers in agricultural public sector .

Key words: Investment Expenditure, Operation Expenditure, Autoregressive Distributed Lag.

تحليل اقتصادي لأثر الانفاق الحكومي في الناتج المحلي الزراعي في العراق للمدة 1990-2020

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الخلاصة

استهدف البحث تحديد أثر الانفاق الزراعي العام في الناتج المحلي الزراعي بالعراق للمدة 1990- 2020 يتضمن الانفاق الزراعي العام كل من الانفاق الاستثماري والانفاق التشغيلي. يعمل الانفاق الاستثماري على توسيع الطاقات الانتاجية وزيادة رؤوس الاموال الثابتة وبالتالي التاثير في النمو الزراعي، الا ان هذا الانفاق يتسم بالتقلب والتذبذب نتيجة الاوضاع الاقتصادية والامنية للبلد هذا من جانب ومن جانب اخر انخفاض حجم الاستثمار الزراعي العام والخاص . اما الانفاق التشغيلي فانه يتسم بزيادة حجمه نتيجة توسيع الاستخدام في القطاع العام, تم الاعتماد على بيانات سلسلة زمنية للمتغيرات التي تضمنها الانموذج وبعد فحص استقرارية المتغيرات التي استقرت بعد اخذ الفرق الاول لها , تم استخدم انموذج الانحدار الذاتي للأبطاءات الموزعة (ARDL) لتحليل البيانات لقياس تأثير كل من الانفاق التشغيلي والاستثماري في الناتج المحلي الزراعي, وقد بينت النتائج أن الانفاق التشغيلي كان له تأثير سالباً في الناتج إذ أشار الى

وجود بطالة مقنعة في الجهاز الاداري لوزارة الزراعة والدوائر التابعة لها وان ارتفاع حجم الانفاق التشغيلي يكون على حساب الانفاق الاستثماري الذي كان تأثيره إيجابياً ومعنوياً حيث ان زيادة الانفاق الاستثماري بنسبة 0.01% يؤدي الى زيادة الناتج المحلي الزراعي بنسبة 0.06% لذا ويوصي البحث بزيادة حجم الانفاق الاستثماري العام بما يتلاءم وأهميته الاقتصادية والاجتماعية و ينبغي اعادة هيكلة القطاع العام لتقليص الانفاق التشغيلي ورفع كفاءة العاملين في القطاع الزراعي العام.

الكلمات المفتاحية: الانفاق الاستثماري، الانفاق التشغيلي، الانحدار الذاتي للابطاءات الموزعة.

INTRODUCTION

The public expenditure is defined sum of money the state employ it for fulfill social benefit **(Al-far, 2008)**. as well It defined as sum of money that give off from state treasury by different types institutions ,ministries for satisfy social benefit (**Abu Ahmed 2002;Al-Ugaili&Salih 2017;Barbaz *et al.*, 2020)**, The activates of this sector have been related to the provision of basic human needs and the achievement of food security through adoption by the state of appropriate policies, development of agricultural production in general and the development of human food in particular is a major concern for agricultural economic policy planners, especially in developing countries so the investor aims is obtain the highest return and the lowest degree of risk **(Nagham & Aysar, 2020**), so must be the real challenge for any organization as the ability to employ modern technologies in any field of its activities to achieve the excellence (**Al-Heali,2022**), in our study there is the operation &investment agricultural expenditure of money policies that the state use it to obtain development in agricultural sector , the investment expenditure for agricultural sector have evident effect not just at agriculture domestic product but at general domestic product, the investment expenditure is sum of money get it from financial budget of agriculture ministry for investment it is in economic development project for the country as infrastructure project ,dams erection ,split rivers and else stimulate the economic for growth (**Ali &Ali, 2020**), Development prepare the needs of the present people without harming the needs of future people. Agricultural activity is one of the main basic of economic developmentand Agricultural development have an important status because of its important role in economic and social life so Achieving Agricultural development make food security**. (Al-Affoun2017; Al-Janabi &Ahmed2017; Hamad & Muhammad2011; Hussein 2017).** aim of the study is effect both of the operation &investment agricultural expenditure at agriculture domestic product, problem of the study is run down in agriculture domestic product connect with study hypothesis that find overflowing in agricultural operation expenditure, we obtain at data of the government institutions by questionnaire form, utilization human, natural and financial capabilities is the optimum solution of most economists to crossing economic problems. The Investment find production ,self-sufficiency, employment and improve the level of living ,political constancy, The higher the growth rates of domestic production and Limitedness of the market is one of the main impediments to development, and it has become clear that the growth and increase of external demand for export products leads to the stimulation and channeling of investment in them to introduce better methods in the production and marketing of their products (**Khadrawi 2013; Al-Jubory & Al-Badri 2017**) **,** as well investment increase the productivity of the producer, so developing productive sectors, as new employment, renew buildings and agricultural facilities, reclaiming agricultural areas, using technical methods of agricultural mechanization, and developing productive capacities, if it was plant or animal (**Ahmed &Hamza, 2017**), and that the agricultural sector is one of the leading sectors in Economic growth (**Al-Sudani &Al-Hayali, 2021**), so agricultural investment projects have an important

function in obtain agricultural and economic growth, investment projects are of great importance by which countries turn from stagnation to growth (**Mahmoud *et al.*, 2019**). The agricultural sector has a linear effect on agricultural growth and investment (**Nuri & Al-Hayali 2019**). investment is a positive economic function with it increase in fixed and working capital, especially investment in infrastructure such as agricultural areas reclamation (**Shukr &Hussein, 2013**).

MATERIALS AND METHODS

We are obtain at data of the variables in economic function as investment and operation expenditure , agriculture domestic product from its secondary sources, the model was estimated by ARDL method, as this model takes a sufficient number of lag periods to obtain the best set of data by the general framework model so find best results for the parameters at long run, make diagnostic tests (Enders 1995;Al-Hani&Ahmed 2016) objective of the unit root test is to measure the stability of time series , and diagnostic tests were conducted for standard problems and a period was chosen Optimal lag period of the model and the program Automatically choose the best lag period that the best statistical and econometric model, (Kahli , 2017). we used ARDL model after accentual that the variables are not integrated of the second order, using unit root tests. And the bounds test was carried out to see if there was evidence of a long-run relationship between the variables, and stability was made for the variables included in the economic model, as the variables were dynamically stable in both tests (Phillips-perron and Dickey Fuller).

Table (1): data of Agricultural domestic product, agricultural operation and investment expenditure (thousand Iraqi dinar) 1990-2020.

AGP	Y1	OP	YEAR	AGP	Y1	OP	YEAR
288030	6195900	57220000	2006	254000	3447800	101000	1990
14320	4479900	73805000	2007	51000	2877200	102000	1991
20020	3889000	84823000	2008	125000	3531903	179000	1992
46020	4020700	487896000	2009	137000	3492402	417000	1993
1918000	4036700	557379000	2010	96730	3741001	550000	1994
1770016	4739700	812091000	2011	52080	4188200	1940000	1995
15116000	4941400	794432000	2012	19100	4498300	1284000	1996
39307000	6123800	837847000	2013	108070	4133800	2039000	1997
12964000	6000600	3248000000	2014	92070	4475100	2583000	1998
9470000	3787400	808788000	2015	103060	5188300	4018000	1999
164000	3775700	801650000	2016	139060	4589000	5043000	2000
10670000	3171700	609498000	2017	287058	4644000	3680000	2001
12033000	3811900	619066000	2018	228050	5432600	5469000	2002
13858000	3217800	631659000	2019	119045	3850300	33419000	2003
14366000	3513800	1424000	2020	10040	4521800	182042000	2004
				70032	5939600	65178000	2005

Source: Ministry of agriculture, planning and follow-up data, Statistics Department, Baghdad, Iraq,2020.

*OP: refer to agricultural operation expenditure.
*Y1: refer to agriculture domestic product.
*AGP: refer to agriculture investment expenditure.
We are formulated economic model for explain the economic relationship as follows:
$LnY_1=b_0+B_1lnOP+B_2LNAGP$
LNY_1: The natural logarithm of agricultural domestic product in Iraq for the period(1990-2020).
LNOP: The natural logarithm of agricultural operation expenditure in Iraq for the period (1990-2020).
LNAGP: The natural logarithm of agricultural investment expenditure in Iraq for the period (1990-2020).

RESULTS AND DISCUSSION

By using the ARDL model, the results of the quantitative analysis of the effect the sum of variables on the agricultural domestic product through the duration 1990-2020 before find the effect of independent variables as agricultural operation expenditure and agricultural investment expenditure on agricultural domestic product we make tests Phillips-perron and Dickey Fuller for model variables that were Static at the first difference, where the economic variables were not constant at the level, but they static at the first difference, where the calculated value of T was less than the critical or tabular T value, where the economic tests assume that the variables were not constant at the level, but become constant at the first difference, as in the table (2).

Table (2): results of unit root of test (PP).

UNIT ROOT TEST TABLE (PP)

		At Level		
		LNOP	LNY1	LNAGP
With Con...	t-Statistic	-1.6960	-2.5453	-1.5524
	Prob.	*0.4230*	*0.1154*	*0.4939*
		n0	n0	n0
With Con...	t-Statistic	3.9997	-2.2928	-3.0418
	Prob.	*1.0000*	*0.4248*	*0.1382*
		n0	n0	n0
Without C...	t-Statistic	0.0438	0.0183	0.7142
	Prob.	*0.6890*	*0.6808*	*0.8641*
		n0	n0	n0
		At First Difference		
		d(LNOP)	d(LNY1)	d(LNAGP)
With Con...	t-Statistic	-2.6695	-6.6550	-8.4425
	Prob.	*0.0915*	*0.0000*	*0.0000*
		*	***	***
With Con...	t-Statistic	-3.0534	-15.1156	-10.8250
	Prob.	*0.1359*	*0.0000*	*0.0000*
		n0	***	***
Without C...	t-Statistic	-2.8137	-6.7994	-7.6172
	Prob.	*0.0066*	*0.0000*	*0.0000*
		***	***	***

Source: Calculated based on output of program Eviews10.

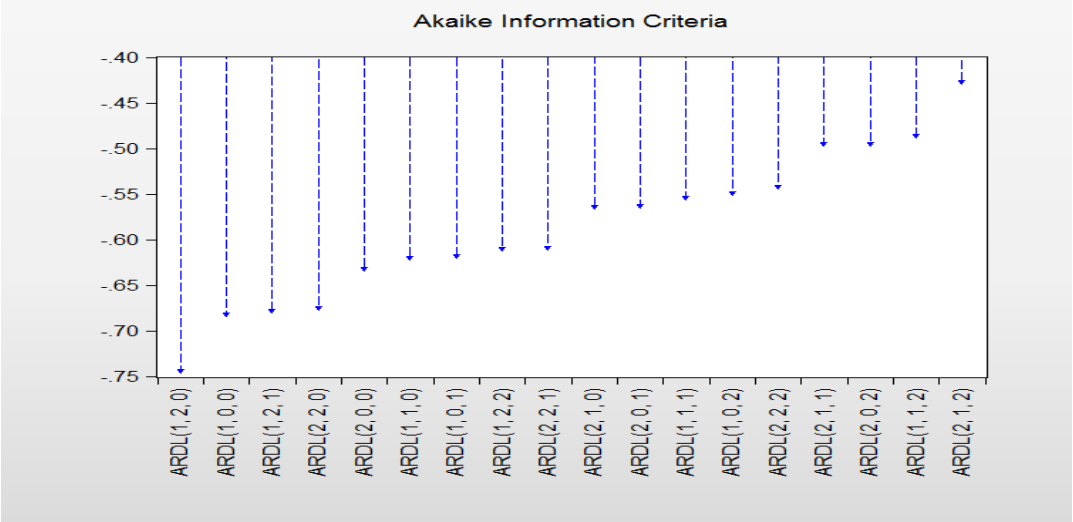

Figure (1): possible models according akaike criteria
Source: Calculated based on output of program Eviews 10.

From Fig.1. explain The Akaike criteria is a tool utilized to determine the optimal lag period and estimate the rank of a model. The Akaike criteria is used to select the model (212) with the best fit among a set of (20) models.

To determined a relationship between the dependent variable and the independent variables, the cointegration test and the BOUND Test were adopted for the model through (table, 3):

Table (3): results cointegration test for the model:

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	3.895626	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Source: Calculated based on output of program Eviews10

Table (3) explain the calculated value of F amounted to 3.89, which is higher than the tabular value at a significant level of 5%, rejecting the null hypothesis, there is no cointegration, and confirming and sure of cointegration. After confirming a model is free of econometric variables affecting the agricultural domestic product problems was estimated the short-run function using the ARDL method and the agricultural operational expenditure parameter explain a negative effect at a significant level of 1%. When operating expenditure increased by 1%, the agricultural domestic product decreased by % 0.10. but the agricultural investment expenditure parameter, it had a positive and significant effect at a significant level of 1%,which indicates an increase in agricultural investment expenditure by 1% due to an increase in agricultural produce by %0.06, which is consistent with economic logic, as an increase in capital invested in implementing strategic agricultural projects, it was animal or plant have a function in raise production capacities and thus increasing the agricultural domestic product. The value of R^2 was 0.66, indicating that 66% of the changes in the dependent variable cause of the independent variables included in the model, and that 34% of the variables were not included in the model, the effect of which was absorbed by the random variable, explain in the results of the short-term as shown in table (4).

Table (4): short run function.

ARDL Error Correction Regression
Dependent Variable: D(LNY1)
Selected Model: ARDL(2, 1, 2)
Case 2: Restricted Constant and No Trend
Date: 01/31/23 Time: 19:01
Sample: 1 31
Included observations: 29

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNY1(-1))	0.361479	0.200404	1.803748	0.0914
D(LNOP)	-0.102379	0.030923	-3.310801	0.0048
D(LNAGP(-1))	0.063385	0.020373	3.111236	0.0072
CointEq(-1)*	-0.358069	0.105593	-3.391019	0.0040

R-squared	0.660333	Mean dependent var	0.000226
Adjusted R-squared	0.509369	S.D. dependent var	0.178765
S.E. of regression	0.125216	Akaike info criterion	-1.056351
Sum squared resid	0.282223	Schwarz criterion	-0.624405
Log likelihood	23.26074	Hannan-Quinn criter.	-0.927911
Durbin-Watson stat	2.114972		

* p-value incompatible with t-Bounds distribution.

Source: Calculated based on output of program Eviews10.

But long run function was explain that agricultural operational expenditure have a negative effect on the level of 1%, and its value was 0.07, but its value is less than its value in the short term, so cause the policies followed in decreasing disguised unemployment in the Ministry of Agriculture and its institutions but the value of agricultural investment expenditure, it amounted to 0.32, which had a positive and
Significant effect At the level of 1% as shown in Table (5).

Table (5): long run function.

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNOP	-0.077650	0.024872	-3.121981	0.0056
LNAGP	0.320267	0.115506	2.772730	0.0074
C	15.66960	0.870634	17.99793	0.0000

EC = LNY1 - (-0.0776*LNOP + 0.3202*LNAGP + 15.6696)

Source: Calculated based on output of program Eviews10

Econometric tests of the ARDL model

It is sum of criteria and tests used in econometrics for evaluate the efficiency of the model. These tests as the Lagrangian factorial test for the serial correlation of the residuals and the homogeneity of variance test for Breusch Codfrey, Harvey and Arch the model was free of econometric problems Table (6) indicates that the model has passed standard tests, such as the absence of Autocorrelation using the LM test with a probability value of (0.2346). Therefore, we can accept the Null hypothesis of no autocorrelation problem in the model. Table (7) The test showed no issue of heteroscedasticity using a probability value of (0.1374) and the tests of Harvey and ARCH showing no problem in heteroscedasticity with a probability values (0.3224), (0.9892) In sequence,as in the following tables(6) and (7).

Table (6): Lagrangian factorial test for the serial correlation between the residuals LM)

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.782051	Prob. F(2,13)	0.4778
Obs*R-squared	2.899646	Prob. Chi-Square(2)	0.2346

Source: Calculated based on output of program Eviews10.

Table (7): Heterogeneity tests.

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.014776	Prob. F(11,15)	0.1034
Obs*R-squared	16.10193	Prob. Chi-Square(11)	0.1374
Scaled explained SS	3.464893	Prob. Chi-Square(11)	0.9830

Heteroskedasticity Test: Harvey

F-statistic	1.187774	Prob. F(11,15)	0.3704
Obs*R-squared	12.56948	Prob. Chi-Square(11)	0.3224
Scaled explained SS	6.208973	Prob. Chi-Square(11)	0.8591

Heteroskedasticity Test: ARCH

F-statistic	0.000169	Prob. F(1,24)	0.9897
Obs*R-squared	0.000183	Prob. Chi-Square(1)	0.9892

Source: Calculated based on output of program Eviews10

The normal distribution of residuals in Fig. (2) achieved by using the Jarque-Bera(JB) test with a probability value (0.770) which is greater than 0.05 and we accept the Null hypothesis that the residuals have normal distribution.

To ensure that the data used in this study is free from any structural changes, it is necessary to employ appropriate tests such as Cumulative Sum of Recursive Residuals (CUSUM) and Cumulative Sum of Squares of Recursive Residuals (CUSUM of Squares). These tests are considered important in this field detecting the presence of any structural changes in the data and assessing the long-term stability and coherence of parameters with short-term parameters the graphical representation of both CUSUM and CUSUM of Squares tests falls within the critical boundaries at a significance level of 5%, it indicates structural stability. Based on the findings of most of these studies, we conducted the tests CUSUM in Figure (3). CUSUM of squares in Fig. (4) There is harmony and stability in both the short-term and long-term models.

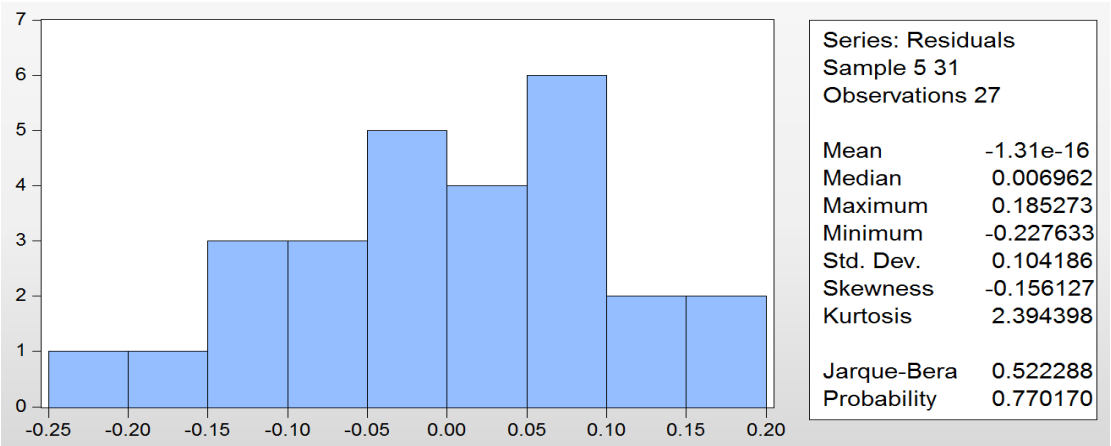

Figure (2): test of random error distribution
Source: Calculated based on output of program Eviews10

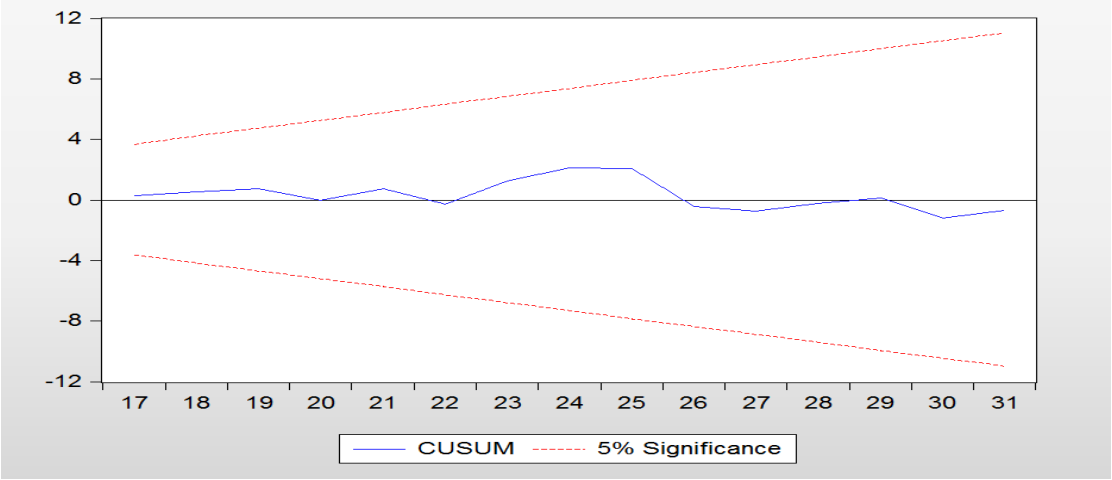

Figure (3): structural stability CUSUM

Source: Calculated based on output of program Eviews10.

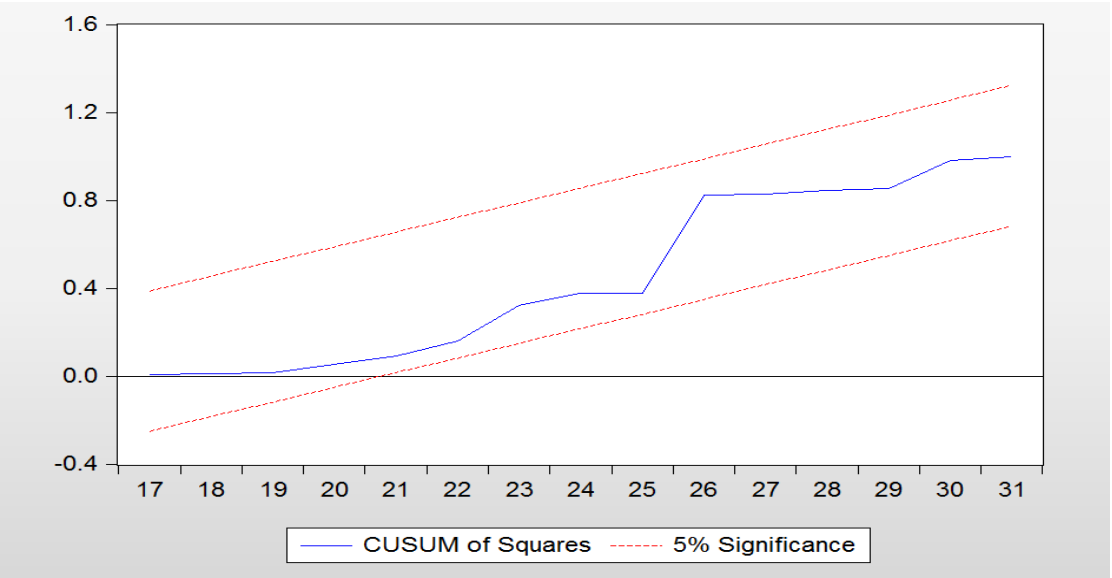

Figure (4): structural stability CUSUM of squares.
Source: Calculated based on output of program Eviews10

CONCLUSIONS AND RECOMMENDATIONS

The study is concluded the disguised unemployment in the Ministry of Agriculture and its institutions, so increase of operational expenditure and prefer on investment expenditure, which is negatively reflected in the agricultural domestic product and make the Ministry to finance agricultural investments in the budget by lending, also payment of interest, which increases the state of disability in finance investment expenditure, so the study recommend restructure the ministry of agriculture and their institutions ,employment certificates and technicians and review the employment policy and the distribution of jobs for find the benefit to farmers and the agricultural sector . motivation it is role in private sector in agricultural product investment agricultural ,so must make an expenditure policy in relation to operational and agricultural investment expenditure to get financial and monetary stability to reach the levels of development and economic and agricultural growth also put importance to unemployment because it is one of the serious economic problems that threaten the economic situation, its stability and development, and the provision of job opportunities by development projects related to the agricultural sector, the employment, and the absorption and curing disguised unemployment.

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