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MEASURING AND ANALYZING THE IMPACT OF THE COMPONENTS OF PUBLIC SPENDING ON THE COMPONENTS OF THE TRADE BALANCE IN IRAQ FOR THE PERIOD (2004-2020)

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Abstract

The issue of public spending and the trade balance is one of the important topics that aroused the interest of researchers, as the research aims to measure and analyze the impact of public spending on the trade balance in Iraq for the period (2004-2020), as well as analyze the structure of public spending in terms of (current and investment) and the trade balance with both parts (exports and imports).The results of the research proved the existence of a direct and moral relationship between current spending and exports in the long term, and this means that the increase in long-term current spending by (1) billion dinars leads to an increase in exports in Iraq by (793) million dinars, while other factors remain constant. And at the level of significance (0.0041). This on the one hand agrees with the research hypothesis and on the other hand is contrary to the economic theory which says that there is an inverse relationship between current spending and exports. The results of the research proved the existence of a direct and moral relationship between current spending (CS) and imports (IM) in the long term, as the increase in current spending in the long term by (1) billion dinars leads to an increase in imports by (702) million dinars, while other factors remain fixed, and at a significant level (1%), and this agrees with the research hypothesis and the economic theory which says that there is a direct relationship between current spending and imports. The researcher's relied on the inductive approach to use modern standard models based on the Autoregressive Distributed Deceleration (ARDL) methodology, as the annual data for the period (2004-2020) was used to measure and analyze the results of the impact of public spending on the trade balance through the use of the statistical program (Eviews.9).

Keywords: Public Expenditure, Trade Balance, Autoregressive (ARDL).

First: Introduction

The Iraqi economy witnessed structural imbalances that it could not get rid of because they are linked to each other. The imbalance in the structure of the trade balance is a reflection of another imbalance that is more severe, which is the imbalance of the production structure as a result of rentier unilateralism and neglect of other sectors, and then the low contribution of the productive sectors to the GDP and the high contribution of the oil sector This was reflected in the lack of diversification of the export structure and dependence on oil exports. In addition, the fiscal policy pursued by the state did not succeed in revitalizing the economy through public spending, because the increase in current spending increased domestic demand, which was not matched by an increase in domestic supply due to the almost complete cessation of the productive system, which made the government resort to bridging the domestic demand gap. By importing from abroad various goods and services, which means the exit of hard currency

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abroad and the continued depletion of financial resources by the economy, in addition to the fact that the decline in investment spending contributed to the weakness of the productive sectors and the weakness of commodity exports, thus keeping the oil sector as the only and dominant resource for Iraq's exports. In the opinion of economists, the greater the public expenditure, the greater the public benefit, but this belief is incorrect, because in the event of an increase in expenditures without achieving the intended benefits, it will result in an increase in extravagance and waste of public money due to the misdistribution of expenditures.

Second: Research Importance

The research shows the success of the public spending policy adopted in Iraq during the period (2004-2020) in improving the balance of the Iraqi trade balance.

Third: Research Problem

The Iraqi economy has suffered from an imbalance in the trade balance as a result of the distortion in the structure of exports as a result of absolute dependence on one commodity, which is crude oil, which is governed by external regional and international variables as well as internal variables and political and institutional conditions, which lead to its fluctuations from time to time. Which caused a chronic imbalance in the Iraqi trade balance, part of this imbalance was addressed through spending.

Fourth: Research Hypothesis

The research stems from the hypothesis that there is a direct, equilibrium, long-term relationship of public spending, both current and investment, and it has an active role in correcting the imbalance of the structure (exports, imports, net trade balance) in Iraq during the research period.

Fifth: Research Objectives: The research objectives include the following:

1) Determining the problems experienced by both exports and imports in Iraq.
2) Determining the impact of public spending on the balance of trade balance in Iraq..

Sixth: Research method

In order to achieve the objectives of the researcher's and prove the hypothesis, the researcher relied on the inductive approach based on economic measurement using the Autoregressive Distributed Deceleration Model (ARDL) to measure the impact of public spending on the Iraqi trade balance for the period (2004-2020), based on the statistical program (Eviews.9) in estimating and extract the results.

Seventh: Research Structure: The research was divided into two sections as follows.

The first topic: its title was the theoretical and conceptual framework of public spending and the trade balance, while the second topic came: the results of measuring and analyzing the impact of public spending on the trade balance in Iraq for the period (2004-2020). The research concluded with a set of conclusions and recommendations.

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The first topic: Its title was the theoretical and conceptual framework of public spending and the trade balance.

1-1 The concept of public expenditure and trade balance:

Public spending is defined as the sum of cash that the state spends on purchasing goods and services with the aim of achieving public interest and satisfying the needs of society (Foster and Fozard, 2000:141). It is defined as what the government spends on purchasing goods and services with the aim of providing public benefits and paying for them through taxes and other sources of revenue (**Mceachern,2012:354**).

As for the trade balance: it is defined as the difference between the value of goods and services sold to foreigners by residents and companies in the home country and the value of goods and services purchased by foreigners, in other words, the difference between the value of goods and services that are exported and imported by a country (**Mannur,1999:238).**

1-2 Types of Public Expenditure:

It is divided according to the types of goods and services purchased by the state, which are of two main types: (Al-Taher, 126:1988) (Abadir and the Islands, 2006: 49-50).

1-2-1 Current (consumer) spending: It is what the government spends on purchasing goods and services for current use to directly meet the individual or collective needs of the members of society that are needed to manage appliances, fuel, furniture, tools and stationery.....etc.

1-2-2 Investment spending (capital): It is the expenditure necessary to establish investment projects carried out by the government. There are investment spending in basic infrastructure projects, and it is sometimes called investment in social capital, as the social return is the main motive behind that spending and another It is called direct investment in various industries and is based on commercial bases, and the main motive is to participate in advancing the wheel of development and directing various activities in order to achieve balance in economic development(Dowidar, 2009: 79).

The second topic: the results of measuring and analyzing the impact of public spending on the trade balance in Iraq for the period (2004-2020).

2-1 Unit root tests for dormancy:

One of the first steps used in applying the ARDL methodology is the inactivity of the time series, as there are many tests that are used to detect the inactivity of the time series. When the researcher conducts any standard study, he must know the stability of the time series for all the variables in question. There are many Among the tests that are used to detect the unit root problem of static and determine the stability of time series, among these tests are the developed Dickey Fuller test (ADF) and the Phelps-Peron test (PP), as they are among the most accurate tests to detect time-series inactivity, according to the following:

2-1-1 The developed Dickey-Fuller test (ADF): Table (1) shows the results of the unit root test for static according to the developed Dickey-Fuller test, in order to test the null hypothesis

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that the time series of a variable is unstable, against the alternative hypothesis that The time series is stable, as the research results showed through the table below that the variables are unstable at the original level, because the calculated (t) value was less than the tabular (t) value and at the levels of significance (1%, 5%, and 10%), and this means accepting the null hypothesis (H0: B = 0), which states that there is a unit root and that time series are not static, but these variables have become stationary at the first difference with the presence of a fixed term, a fixed boundary and a time trend and without them, at the levels (1% and 5%), and this means that The calculated (t) is greater than the tabular (t) and the critical probability (Prob.) values were less than (5%), so we reject the null hypothesis, and accept the alternative hypothesis (H1: B ≠ 0), that is, it is integrated of the order I(0) and I.(1).

Table (1) The results of the unit root test according to the (ADF) test at the original level and the first difference

ADF			**At Level**				
With Constant			**Variables**	**EX**	**CS**	**IM**	**IS**
			t-Statistic	-2.6909	-2.4459	-2.2401	-1.5223
			Prob.	0.0813	0.1335	0.1945	0.5158
			Result	*	n0	n0	n0
With Constant & Trend			t-Statistic	-2.4021	-2.4548	-2.3160	-0.1146
			Prob.	0.3749	0.3490	0.4195	0.9936
			Result	n0	n0	n0	n0
Without Constant & Trend			t-Statistic	-1.0141	-0.5196	-0.5946	-1.0309
			Prob.	0.2761	0.4879	0.4561	0.2694
			Result	n0	n0	n0	n0
			At First Difference				
With Constant			Variables	d(EX)	d(CS)	d(IM)	d(IS)
			t-Statistic	-3.1824	-3.1840	-2.8252	-1.9252
			Prob.	0.0255	0.0254	0.0602	0.3189
			Result	**	**	*	n0
With Constant & Trend			t-Statistic	-3.3900	-3.2190	-2.8720	-4.7327
			Prob.	0.0615	0.0897	0.1782	0.0016
			Result	*	*	n0	***
Without Constant & Trend			t-Statistic	-3.2253	-3.2059	-2.8861	-2.0090
			Prob.	0.0016	0.0017	0.0045	0.0435
			Result	***	***	***	**
Rank				I(1)	I(1)	I(1)	I(1)
			Critical table values				
			At Level	**At First Difference**			
significance level	With Constant	With Constant & Trend	Without Constant & Trend	With Constant	With Constant & Trend	Without Constant & Trend	
1%	-3.512290	-4.073859	-2.593468	-3.512290	-4.073859	-2.593468	
5%	-2.897223	-3.465548	-1.944811	-2.897223	-3.465548	-1.944811	
10%	-2.585861	-3.159372	-1.614175	-2.585861	-3.159372	-1.614175	

Source:

- Prepared by the researcher based on the outputs of the statistical program (Eviews.9).
- (*), (**), (***) indicate that it is significant at the level (10%, 5%, 1%).
- (NO) indicates that it is not significant.

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2-1-2 Phelps-Beron (PP) test: It is evident from Table (2) that the results of the unit root test for static did not differ according to the Phillips-Perron test (PP) than they were in the Dickey-Fuller test (ADF), this gives greater credibility, as the time series were not static at the level also for all research variables Therefore, the first difference was taken for it and it was found that it stabilized at a significant level (1%, 5%), as the calculated (t) value was greater than the critical (t) value at a significant level (1%, 5%) and that the probability values (Prob). The criticality was less than (5%), which means that the alternative hypothesis (H1: B≠0) is accepted, which says that there is no unit root, that is, it is an integral of order I(1), while the static character was achieved at the original level of the trade balance at Significance level less than (5%), as the calculated (t) value was greater than the critical (t) value, which means rejecting the null hypothesis (H0: B=0) which says that there is a unit root and accepting the alternative hypothesis (H1: B≠0). It says that there is no unit root, that is, it is an integral of order I(0). It was found that all the variables of the time series are stable at the first difference according to the Dickey-Fuller test (ADF) and the Phelps-Perron test (PP), meaning that the series in question is integrated of the first degree.

Table (2) The results of the unit root test according to the (PP) test at the original level and the first difference

ADF	**At Level**				
With Constant	**Variables**	**EX**	**CS**	**IM**	**IS**
	t-Statistic	-2.6909	-2.4459	-2.2401	-1.5223
	Prob.	0.0813	0.1335	0.1945	0.5158
	Result	*	n0	n0	n0
With Constant & Trend	t-Statistic	-2.4021	-2.4548	-2.3160	-0.1146
	Prob.	0.3749	0.3490	0.4195	0.9936
	Result	n0	n0	n0	n0
Without Constant & Trend	t-Statistic	-1.0141	-0.5196	-0.5946	-1.0309
	Prob.	0.2761	0.4879	0.4561	0.2694
	Result	n0	n0	n0	n0
	At First Difference				
With Constant	Variables	d(EX)	d(CS)	d(IM)	d(IS)
	t-Statistic	-3.1824	-3.1840	-2.8252	-1.9252
	Prob.	0.0255	0.0254	0.0602	0.3189
	Result	**	**	*	n0
With Constant & Trend	t-Statistic	-3.3900	-3.2190	-2.8720	-4.7327
	Prob.	0.0615	0.0897	0.1782	0.0016
	Result	*	*	n0	***
Without Constant & Trend	t-Statistic	-3.2253	-3.2059	-2.8861	-2.0090
	Prob.	0.0016	0.0017	0.0045	0.0435
	Result	***	***	***	**
Rank		I(1)	I(1)	I(1)	I(1)
	Critical table values				
	At Level			**At First Difference**	
significance level	With Constant	With Constant & Trend	Without Constant & Trend	With Constant	With Constant & Trend	Without Constant & Trend
1%	-3.512290	-4.073859	-2.593468	-3.512290	-4.073859	-2.593468
5%	-2.897223	-3.465548	-1.944811	-2.897223	-3.465548	-1.944811
10%	-2.585861	-3.159372	-1.614175	-2.585861	-3.159372	-1.614175

Source:

- Prepared by the researcher based on the outputs of the statistical program (Eviews.9).
- (*), (**), (***) indicate that it is significant at the level (10%, 5%, 1%).
- (NO) indicates that it is not significant.

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2-2 The first model: measuring the impact of current spending and investment spending on exports.

2-2-1 Initial assessment of the first model according to the (ARDL) methodology.

Table (3) shows the results of the initial assessment of the (ARDL) model, and the rank of the model that was selected according to the (ARDL) methodology is (3, 1, 1) according to the slowing criteria (HQ, BIC, AIC), as the slowing period was chosen according to AIC standard), which represents the lowest value for this standard. Table (3) shows the relationship between exports (EX) and public spending in terms of current (CS) and investment (IS), as it is noted from the table below that the coefficient of determination (R^2) reached (0.96), which gives explanatory power to the studied model, that is, that The independent variables explain about (96%) of the changes that occur in the dependent variable (Exports), while the remaining percentage (4%) represents the effect of other variables that were not included in the studied model. (257.09) indicates the significance of the model used in estimating the short-term and long-term parameters. As for the corrected determination coefficient, $\bar{R}^2$), it was (0.96), as the value of (R-squared, which was less than the value of Durbin-Watson stat, showed that there is no The existence of false regression between the variables and therefore we go with the integrity of the prototype and go to estimate the co-integration relationship between the variables.

Table (3) results of the preliminary estimation of the export model (EX) according to the (ARDL) methodology

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX (-1)	1.352156	0.123805	10.92163	0.0000
EX (-2)	-0.219536	0.212171	-1.034710	0.3052
EX (-3)	-0.307202	0.125393	-2.449911	0.0174
CS	-0.379308	0.243366	-1.558587	0.1246
CS (-1)	0.517803	0.250606	2.066207	0.0434
IS	0.879294	0.276518	3.179882	0.0024
IS (-1)	-0.777244	0.310753	-2.501163	0.0153
C	3239.372	2015.801	1.606990	0.1136
R-squared	0.969300	Mean dependent var		70591.06
Adjusted R-squared	0.965530	S.D. dependent var		26032.62
S.E. of regression	4833.264	Akaike info criterion		19.91925
Sum squared resid	1.33E+09	Schwarz criterion		20.18687
Log likelihood	-639.3756	Hannan-Quinn criter.		20.02484
F-statistic	257.0956	Durbin-Watson stat		2.006177
Prob(F-statistic)	**0.000000**			

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

2-2-2- Results of the Bounds Test: In order to test the long-run equilibrium relationship (the presence of co-integration), between the dependent variable represented by exports (EX) and the explanatory variables represented by current spending (CS) and investment spending (IS)), the value of (F-statistic) was calculated by testing the limits, if the value of (F-statistic)

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calculated is greater than the upper limit of critical values (Upper Bound), then the null hypothesis (0H) which says that there is no long co-integration relationship is rejected Term and acceptance of the alternative hypothesis (H1) which states that there is a long-term co-integration relationship between the research variables, but if the calculated value (F-statistic) is less than the minimum critical values (Lower Bound), then the alternative hypothesis (H1) is rejected and accepted The null hypothesis (0H), and if the calculated (F-statistic) value is between the two limits (the highest and the lowest), then it is in the area of doubt and it is not possible to know whether or not the co-integration relationship exists between the variables or not until after the test of estimating the parameters in the short and long term and a parameter Correct the error, to check whether there is cointegration or not, and the table (4) It shows the results of the co-integration test according to the limits test.

Table (4) The results of the co-integration test of the export model according to the limits test

Test Statistic	Value	K
F-statistic	4.356808	**2**
Critical Value Bounds		
Significance	Lower Bound)I0(	Upper Bound**1)** I(
10%	2.63	3.35
5%	3.1	3.87
2.5%	3.55	4.38
1%	4.13	5

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

It is inferred from Table (4) that the calculated (F-statistic) value amounted to (4.356), which is greater than the tabular value of the upper and lower bounds at the level of significance (5%), which means acceptance of the alternative hypothesis (H1) which states that there is a co-integration relationship between The variables used during the research period, this means that there is a long-term equilibrium relationship that goes from among the explanatory variables towards the dependent variable represented by (Exports EX), and this confirms the validity of the research hypothesis and based on that it is necessary to estimate the response for the short and long terms and the error correction parameter.

2-2-3- Results of estimating the short-term and long-term parameters and the error-correction parameter.

After conducting the boundary test and making sure that there is a long-term equilibrium relationship (the existence of co-integration) between the dependent variable represented by (exports) and the independent variables represented by (current spending and investment spending), it now requires estimating the short-term and long-term parameters and the error correction parameter (ECM).) Based on the statistical program (Eviews.9) and Table (5) shows those results:

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Table (5) The results of estimating the short- and long-term parameters and the error correction parameter (ECM) of the export model

Cointegrating Form				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(EX (-1))	0.526737	0.110450	4.769018	0.0000
D(EX (-2))	0.307202	0.120737	2.544394	0.0137
D(CS)	-0.379308	0.227862	-1.664634	0.1015
D(IS)	0.879294	0.256037	3.434240	0.0011
CointEq(-1)	-0.174581	0.040761	-4.283043	0.0001
Cointeq = EX - (0.7933*CS + 0.5845 *IS + 18555.1275)				
Long Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CS	0.793303	0.265172	2.991656	0.0041
IS	0.584543	0.593201	0.985406	0.3286
C	18555.13	11879.36	1.561964	0.1238

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

The results of Table (5) indicate the existence of a co-integration relationship between exports (EX) and the independent variables (CS, IS), and this is confirmed by the error correction parameter CointEq(-1) of (-0.174), which is negative and significant at a significant level less than (1 %), and since it is negative and significant, this means that (0.17) of the short-term errors are automatically corrected over time to reach equilibrium in the long run, meaning that exports require about less than a year (0.17) of time to reach its equilibrium value in the long run. This indicates that the adaptation in the model was relatively rapid. It is also evident from Table (5) that:

1) Current spending coefficient (CS) in the long term indicates a positive and moral impact of current spending on exports (EX), which means that the increase in long-term current spending by (1) billion dinars leads to an increase in exports in Iraq by (793) million dinars, with other factors remaining constant, and at a level of significance (0.004), which is contrary to the hypothesis of the research that there is a long-term equilibrium relationship between current spending and exports, and this also provides evidence for the logic of the economic theory that there is an inverse relationship between current spending and exports in the long term. Long term, as current spending in Iraq constitutes a high percentage of more than (77.33%) of the total public spending. And the significant increase in current spending without investment spending, represented by the large increase in salaries and wages paid to employees, which led to a significant increase in per capita income recently, especially after the year (2003). The reasons for the rise are multiple, including political reasons related to wars and the increase in spending on them, including economic ones related to the cash issuance and the accompanying inflation and expansion of the salaries of state employees in recent years, in addition to corruption that erodes state institutions, as well as the increase in the expenses of sheltering and helping displaced families in camps The various displacements and giving grants to families during the period of implementing a comprehensive urbanization in Iraq during the face of the Corona pandemic (COVID-19)

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and irresponsible spending are all reasons that led to a significant increase in current spending**.**

2) The investment spending parameter (IS) also indicates in the long term that it is insignificant to investment spending on exports (EX), and the reason for this is due to the deterioration of the security situation in Iraq, as investment spending requires a more stable environment to attract investors on the economic, political and security levels Because the unhealthy investment climate drives investors to more stable cities, as well as allocating low amounts of investment spending at a rate of (22.65%) of total public spending compared to current spending by the government.

2-2-4- Model integrity tests: After adopting the ARDL model (3, 1, 1) in estimating the short and long-term effects, it is necessary to ensure the quality of the performance of the model used in measuring and analyzing the impact of current spending and investment spending on exports and its safety from standard problems. This is done through the following tests:

1. Test the stability of error limits variance: There are a number of tests used to detect the homogeneity of residuals or not, including the (ARCH) test for variance of error limits, and the test results were as follows:

Table (6) results of the test results for the condition of stability of the error limits of the export model

Heteroskedasticity Test: ARCH			
F-statistic	0.007138	Prob. F(1,62)	0.9329
Obs*R-squared	0.007367	Prob. Chi-Square(1)	0.9316

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

The results of Table (6) indicate that the Exports Model (EX) does not suffer from the problem of heterogeneity, because the calc

ulated F-statistic value reached (0.0071) at the (Prob:0.932) level, which is greater than the (5%) level. Accept the null hypothesis (H0) which states that the variance of the random error term is constant (i.e. the residuals with homogeneous variance) in the estimated model and thus the model becomes free from the problem of homogeneity of variance, and we reject the alternative hypothesis (H1) which says that the residuals have heterogeneous variance (that is, there is a problem of heterogeneity The variance between random variables, and then the (ARCH) test enhances the accuracy of the results of the model (ARDL).

2. Sequential autocorrelation test (LM): The results of the autocorrelation test through Table (7) proved the validity and quality of the model used, through the calculated F-statistic value of (0.058), which was not significant at the (5%) level. Thus, we accept the null hypothesis (H0), which states that there is no autocorrelation problem, that is, the model is good and free of standard problems, and thus the alternative hypothesis (H1) which states that there is an autocorrelation problem is rejected.

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Table (7) Results of the LM model for exports

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.058087	Prob. F(2,55)	0.9436
Obs*R-squared	0.137008	Prob. Chi-Square(2)	0.9338

Source: From the researcher's work based on the outputs of the statistical program Eviews.9)

3. Ramsey RESET Test: This test is used in order to identify the functional form of the model and its suitability, as it appears from Table (8) that the calculated F-statistic value of (0.078) and its probabilistic value Prob: 0.780)), The calculated t-statistic also reached (0.279) at a probability level (0.780), which was greater than (5%), which means accepting the null hypothesis (H0), which states the validity of the (linear) functional form used in the estimated model.

Table (8) RESET Test for the functional form of the export model

Ramsey RESET Test			
Test	**Value**	**Df**	**Probability**
t-statistic	0.279674	56	0.7808
F-statistic	0.078218	(1, 56)	0.7808

Source: From the researcher's work based on the outputs of the statistical program Eviews.9)

The above tests were employed in order to verify the integrity of the standard model used, as their results gave clear evidence that there were no problems in the standard model in question.

2-2-5- Structural stability test results for ARDL model parameters.

To ensure that the data used in the model is free of any structural changes in it, and the stability and consistency of the estimates of the long-term parameters with the estimates of the short-term parameters. The two tests were used:

- **Cumulative Sum Of Recursive Rsidual Test(CUSUM)**
- **Cumulative Sum Of Squares Recursive Rsidual Test(CUSUM-SQ)**

Two tests (CUSUM, CUSUM of Squares) are used in order to verify the stability of the ARDL model, and according to these tests, the structural stability of the estimated coefficients of the ARDL model is achieved, if the graph of each of the two tests is within the framework of the critical limits (the upper and lower bounds) when Adopting a level of significance (5%), and thus accepting the null hypothesis (H0), which states that all the estimated parameters are structurally stable, as shown in the following figure:

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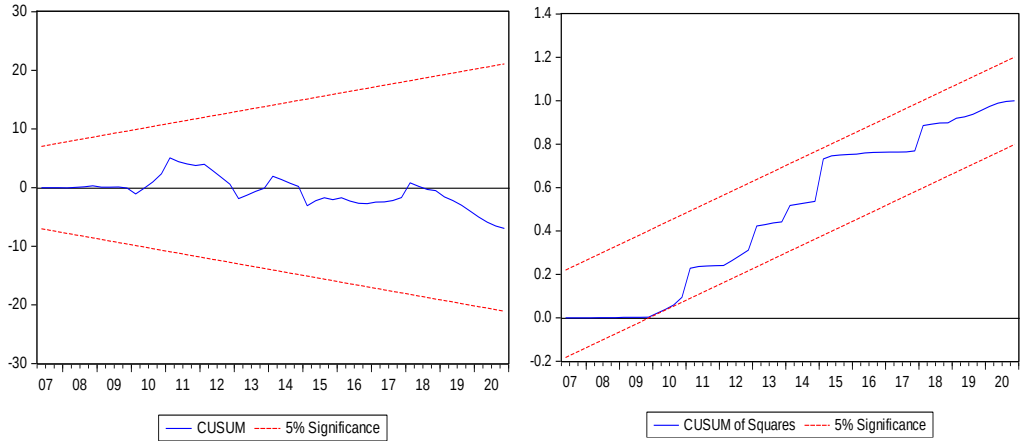
Figure (1) Structural stability test of the first model (exports)



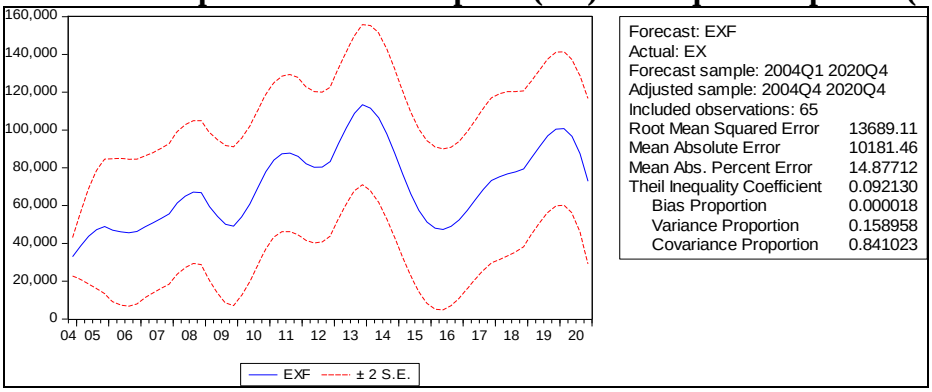
Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

It is clear from Figure (1) that the graph of the two tests lies within the critical limits (the upper limit and the lower limit) when adopting a level of significance (5%), which shows that the cumulative totals revolve around their arithmetic mean during the research period, and this gives evidence of the safety and accuracy of the model (ARDL)., which is an indication of the possibility of adopting the model for forecasting.

2-2-6- Results of the test results of the predictive performance of the estimated unconstrained error correction model:

After completing the structural stability test of the model parameters, and making sure that the data used is free of any structural changes, we use the THEIL inequality test as well as the error sources test to ensure that the model used has a good predictive ability during the research period. This is illustrated by graph (2).

Figure (2) Actual and expected values of exports (EX) in Iraq for the period (2004-2020)



Source: Prepared by the researcher based on the outputs of the statistical program (Eviews.9).

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It can be seen from Figure (2) above that the value of Thayel's inequality coefficient (TT) was (0.092130), which is less than the correct one and is close to zero, while the value of the bias percentage (BP) was (0.000018), which is also less than the correct one and is close to zero. The value of the variance ratio (VP) reached (0.158958), which is close to zero, while the variance ratio (CP) reached (0.841023) which is close to the correct one. It is clear from these indicators that the estimated model has a high and good ability to predict it in the future. In order to take the right economic decisions to achieve the planned and planned goals.

2-3- The second model: measuring the impact of current spending and investment spending on imports.

2-3-1- Preliminary estimation of the second model according to the (ARDL) methodology.

Table (9) shows the results of the initial estimation of the (ARDL) model, which shows the relationship between imports (IM) and public spending in terms of (current and investment), as it is noted from the table below that the coefficient of determination (R^2) reached (0.99), which gives explanatory power. For the model used, that is, the independent variables represented in current spending (CS) and investment spending (IS) explain 99% of the changes that occur in the dependent variable (imports), while the remaining percentage (1%) represents the effect of other variables.

Table (9) results of the initial estimation of the import model (IM) according to the (ARDL) methodology

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IM (-1)	1.335591	0.126202	10.58297	0.0000
IM (-2)	-0.187520	0.214401	-0.874622	0.3856
IM (-3)	-0.284518	0.116170	-2.449145	0.0175
CS	0.309853	0.085564	3.621284	0.0006
CS (-1)	-0.436552	0.143167	-3.049253	0.0035
CS (-2)	0.030604	0.149090	0.205271	0.8381
CS (-3)	0.192012	0.088526	2.168998	0.0344
IS	0.209109	0.080759	2.589308	0.0123
IS (-1)	-0.158651	0.092033	-1.723846	0.0904
C	1028.621	704.9341	1.459173	0.1502
R-squared	0.991841	Mean dependent var		51214.85
Adjusted R-squared	0.990505	S.D. dependent var		14786.07
S.E. of regression	1440.765	Akaike info criterion		17.52437
Sum squared resid	1.14E+08	Schwarz criterion		17.85890
Log likelihood	-559.5422	Hannan-Quinn criter.		17.65636
F-statistic	742.8459	Durbin-Watson stat		2.088015
Prob (F-statistic)	**0.000000**			

Source: Prepared by the researcher based on the statistical program (Eviews.9).

It was not included in the studied model. The value of the (F-statistic) test of (742.845) also indicates the significance of the model used in estimating the short-term and long-term parameters. ((R-squared), which was less than the value of Durbin-Watson stat for the absence of pseudo-regression between the variables and therefore we go with the integrity of the initial

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model and go to estimate the relationship of co-integration between the variables. And the rank of the model that was chosen is (3, 3, and 1) according to the optimal slowdown period criteria (HQ, BIC, AIC), as the slowdown period was chosen according to the (Akaike) standard. Information Criteria (AIC) which is the lowest value for this criterion.

2-3-2- Results of the bounds test for joint integration (Bounds Test): In order to test the long-term equilibrium relationship, between the dependent variable and the imports (IM) and the explanatory variables, (F-statistic) was calculated through the test of limits and table (10) It shows the results of the cointegration test according to the boundary test.

Table (10) results of the co-integration test for the import model according to the limits test

Test Statistic	Value	K
F-statistic	4.842732	**2**
Critical Value Bounds		
Significance	**(I0)Lower Bound**	**(I1)Upper Bound**
10%	2.63	3.35
5%	3.1	3.87
2.5%	3.55	4.38
1%	4.13	5

Source: Prepared by the researcher based on the outputs of the statistical program (9Eviews).

It is inferred from Table (10) that the calculated (F-statistic) value amounted to (4.842), which is greater than the tabular value of the upper and lower bounds at the level of significance (5%), which means acceptance of the alternative hypothesis (H1) which states that there is a joint integration relationship between The variables used during the research period, this means that there is a long-term equilibrium relationship that tends from among the explanatory variables towards the dependent variable represented by (imports), and based on that, it is necessary to estimate the response for the short and long terms and the error correction parameter**.**

2-3-3- Results of estimating the short-term and long-term parameters and the error-correction parameter.

After conducting a boundary test and making sure that there is a long-term equilibrium relationship (co-integration) between the dependent variable represented by (imports) and the independent variables, the table (11) shows these results:

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Table (11) Results of estimating the short and long term parameters and the error correction parameter (ECM) of the imports model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IM (-1))	0.472038	0.112176	4.207996	0.0001
D(IM (-2))	0.284518	0.112365	2.532095	0.0142
D(CS)	0.309853	0.080043	3.871092	0.0003
D(CS (-1))	-0.222616	0.085420	-2.606148	0.0118
D(CS (-2))	-0.192012	0.084787	-2.264639	0.0275
D(IS)	0.209109	0.075027	2.787116	0.0073
CointEq(-1)	-0.136447	0.030189	-4.519682	0.0000
Cointeq = IM - (0.7030*CS + 0.3698*IS + 7538.6346)				
Long Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CS	0.702967	0.108245	6.494235	0.0000
IS	0.369800	0.223509	1.654517	0.1037
C	7538.635	4641.473	1.624190	0.1101

Source: Prepared by the researcher based on the outputs of the statistical program (9Eviews).

The results of Table (11) indicate the existence of a co-integration relationship between imports and independent variables, and this is confirmed by the error correction parameter CointEq(-1) of (-0.136), which is negative and significant at a significant level less than (1%), and since it is negative and significant, this It means that (0.13) of the short-term errors are automatically corrected over time to reach equilibrium in the long-run, meaning that imports require about less than a year (0.13) of time to reach its equilibrium value in the long-run. This indicates that adaptation in the model was relatively rapid. It is also evident from Table (11) that:

1) The current expenditure coefficient (CS) shows that there is a positive and moral response in the long term between current spending and imports (IM), as the increase in long-term current spending by (1) billion dinars leads to an increase in imports by (702) million dinars, With other factors remaining constant. This is consistent with the economic theory that says that there is a direct relationship between current spending and imports.

2) The investment spending coefficient (IS) indicates that there is an insignificant effect of investment spending on imports in the long term, due to the deterioration of the security situation in Iraq, as investment spending requires a more stable environment to attract investors on the economic, political and security levels because the climate Improper investment drives investors to more stable cities, in addition to allocating low amounts of investment spending at a rate of (22.65%) of total public spending compared to current spending.

2-3-4- Model integrity tests: After adopting the ARDL model (3,3,1) in estimating the short and long-term effects, it is necessary to ensure the quality of the performance of the model used in measuring and analyzing the impact of current and investment spending on imports and its safety from standard problems, and that Through the following tests:

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1- The homogeneity stability test for variance (ARCH): There are a number of tests used to detect the homogeneity of the residuals or not, including the ARCH test. It is noted from Table (12) that the import model (IM) in question does not suffer from the problem of lack of The homogeneity of the variance because the calculated (F-statistic) value was (0.016) and the Chi-Square test at the level (Prob: 0.898), and this means accepting the null hypothesis (H0) which says that the variance of the random error limit is stable in the estimated model, and thus becomes The model is free from the homogeneity of variance problem..

Table (12) results of the test of the condition of stability of the error limits of the import model

Heteroskedasticity Test: ARCH			
F-statistic	0.016436	Prob. F(1,62)	0.8984
Obs*R-squared	0.016962	Prob. Chi-Square(1)	0.8964

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews .9).

2- The LM sequential autocorrelation test (LM): The results of the autocorrelation test proved through Table (13) the safety and quality of the model used, through the calculated probability (F) value of (0.179), which was not significant, and therefore we accept the null hypothesis (H0), which states There is no autocorrelation problem, that is, the model is good and free of standard problems.

Table (13) Results of the LM sequential autocorrelation test for the imports model.

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.776844	Prob. F(2,53)	0.1791
Obs*R-squared	4.084433	Prob. Chi-Square(2)	0.1297

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews .9).

3- Ramsey RESET Test: This test is used in order to identify the functional form of the model and its suitability, as it appears from Table (14) that the calculated value of its statistic (F) is (0.175) and its probability value is 0.676)), as well as the value of its statistic (t) computed (0.419) at a probability level (0.676) where they were greater than (5%), which means accepting the null hypothesis (H0) that states the validity of the (linear) functional form used in the estimated model.

Table (14) RESET Test for the functional form of the import model

Ramsey RESET Test			
Test	**Value**	**Df**	**Probability**
t-statistic	0.419516	54	0.6765
F-statistic	0.175993	(1, 54)	0.6765

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews .9).

The above tests were employed in order to verify the integrity of the standard model used, as their results gave clear evidence that there were no problems in the standard model in question**.**

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2-3-5- Results of the structural stability test for ARDL model parameters.

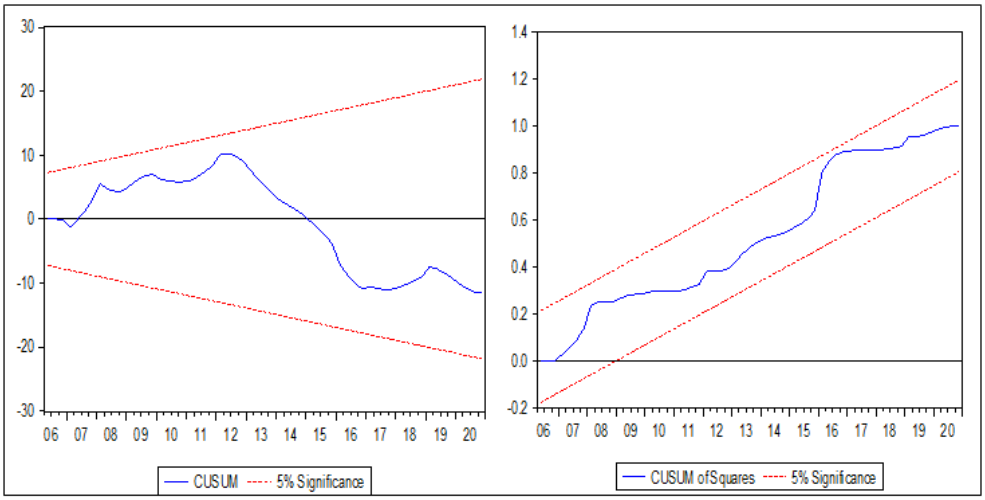
To ensure that the data used in the model is free of any structural changes in it, and the stability and consistency of the estimates of the long-term parameters with the estimates of the short-term parameters. The two tests were used:

Cumulative Sum Of Recursive Rsidual Test (CUSUM)

Cumulative Sum Of Squares Recursive Rsidual Test (CUSUM-SQ)

Two tests (CUSUM, CUSUM of Squares)) are used in order to verify the stability of the ARDL model, and according to these tests, the structural stability of the estimated coefficients of the ARDL model is achieved, if the graph of each of the two tests is within the framework of the critical limits (the upper and lower bounds) when Adopting a level of significance (5%), and thus accepting the null hypothesis (H0), which states that all the estimated parameters are structurally stable, as shown in the following figure:

Figure (3) Structural stability test of the second model (imports)



Source: Prepared by the researcher based on the outputs of the statistical program (Eviews .9).

It is **clear** from Figure (3) that the graph of the two tests falls within the critical limits (the upper limit and the lower limit) when the level of significance (5%) is adopted.), which is an indication of the possibility of adopting the model for forecasting.

2-3-6- Results of the test results of the predictive performance of the Estimated Unconstrained Error Correction (ARDL) model.

After completing the structural stability test of the model parameters, and making sure that the data used is free of any structural changes, we use the THEIL inequality test as well as the error sources test to ensure that the model used has a good predictive ability during the research period. This is illustrated by the following table and diagram:

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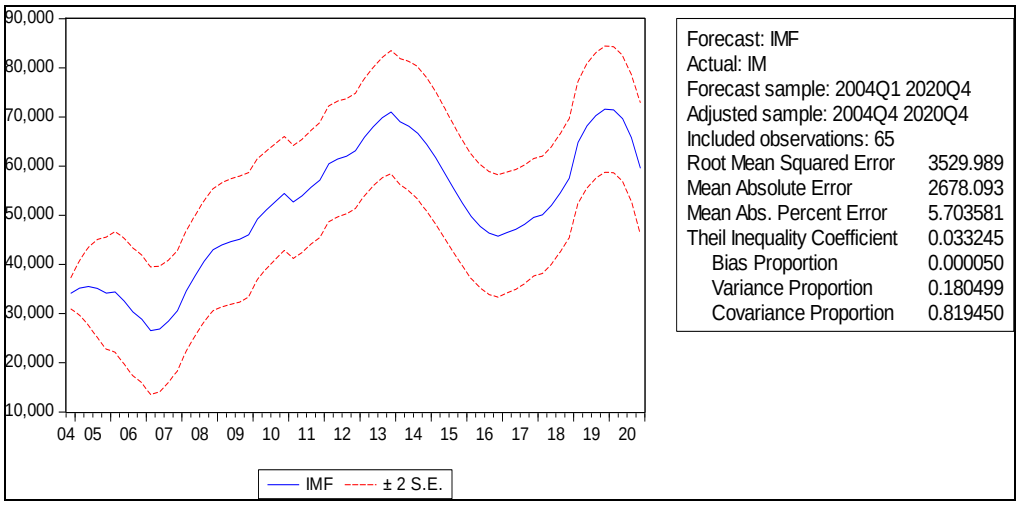
Figure (4) The actual and expected values of imports (IM) in Iraq for the period (2004-2020)



Source: Prepared by the researcher based on the outputs of the statistical program (Eviews .9).

It is clear from Figure (4) above that the value of Thayel's inequality coefficient (TT) was (0.033245) which is less than the right one and is close to zero, while the value of the bias percentage (BP) was (0.00050), which is also less than the right one and close to zero. The value of the variance ratio (VP) was (0.180499), which is close to zero, while the variance ratio (CP) was (0.819450), which is close to the correct one. It is clear from these indicators that the estimated model has a high and good ability to predict it in the future. In order to take the right economic decisions to achieve the planned and planned goals.

First: Conclusions

1) The results of the standard model (ARDL) used to determine the impact of public spending on the trade balance proved that there is a long-term equilibrium relationship (the existence of joint integration), and this was demonstrated through the Bounds Test.
2) The results of the research proved the existence of a direct and moral relationship between current spending and exports in the long term, and this means that the increase in long-term current spending by (1) billion dinars leads to an increase in exports in Iraq by (793) million dinars, while other factors remain fixed, and at the level of significance (0.0041). This on the one hand agrees with the research hypothesis and on the other hand is contrary to the economic theory which says that there is an inverse relationship between current spending and exports.
3) The results of the research proved the existence of a direct and moral relationship between current spending (CS) and imports (IM) in the long term, as the increase in current spending in the long term by (1) billion dinars leads to an increase in imports by (702) million dinars, while remaining The other factors are constant, and at a level of significance (1%), and this

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is consistent with the economic theory which says that there is a direct relationship between current spending and imports.

Second: Recommendations:

1) Giving more importance to investment spending at the expense of current spending, especially in the short and medium term, because investment spending is the basis for the development of the economy and the main means for diversifying and increasing income and consumption in the long term.
2) Providing the necessary protection and support for the productive sectors in Iraq in order to reduce dependence on the outside to satisfy local demand and reduce the phenomenon of economic exposure because of the negative effects of this phenomenon on the overall national economy.
3) The need to adopt a more realistic policy that works to rationalize public spending and reduce unnecessary expenditures, because the Iraqi economy is characterized by an increase in the volume of current spending to reach (77.33%) of the total public spending, with the need to focus on investment spending, which constitutes a low percentage of (22.65%)) of the total public spending, and orientation towards areas that contribute to the development process with the necessity of rational use of available resources, which contributes to the process of creating a surplus in the trade balance in Iraq.

Sources

1) Foster Fozard, mich and Adrian,(2000), aidand public expenditure .A Guide, Overseas institute, working paper, No, 141, October
2) Mceachern , Willam A (2012) Economics A contemporary Introduction , south – Western , cengage learning, (USA).
3) Mannur, H. G. (1999). International economics. Second Revised Edition, Vikas Publishing House. Head, Economics Department,. University of Papua New Guinea, (USA).
4) Al-Taher, Abdullah Sheikh Mahmoud (1988) Economics of Public Finance, first edition, King Saud University Press, Riyadh.
5) Abadir, Atallah Abu Seif, Jaber Mohamed Abdel-Gawad Al-Jazzar (2006) The Economics of Public Finance between Theory and Practice, University Book Publishing and Distribution System, Helwan University, Egypt.
6) Dowidar, Muhammad (2009) Principles of Political Economy, Dar Al-Amaa Al-Jadeed Publishing, Beirut.

Appendix (1) Quarterly data for research variables.

year	EX	CS	IM	IS
2004Q1	22350.3125	35275.59375	28080.0625	2970.8125
2004Q2	24842.6875	30424.15625	30412.4375	2978.6875
2004Q3	27248.1875	26640.28125	32266.1875	3054.9375
2004Q4	29566.8125	23923.96875	33641.3125	3199.5625
2005Q1	31798.5625	22275.21875	34537.8125	3412.5625
2005Q2	33943.4375	21694.03125	34955.6875	3693.9375

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2005Q3	36001.4375	22180.40625	34894.9375	4043.6875
2005Q4	37972.5625	23734.34375	34355.5625	4461.8125
2006Q1	39924.3125	31153.5	32569.59375	4898
2006Q2	41694.6875	32923.5	31380.15625	5473
2006Q3	43351.1875	33842	30019.28125	6136.5
2006Q4	44893.8125	33909	28486.96875	6888.5
2007Q1	42789.4375	29057.3125	22596.8125	6740.5625
2007Q2	45517.5625	29048.1875	22396.1875	8064.9375
2007Q3	49545.0625	29814.4375	23698.6875	9873.1875
2007Q4	54871.9375	31356.0625	26504.3125	12165.3125
2008Q1	73349.4375	34953.375	36086.5	19014.75
2008Q2	76534.5625	37533.625	39789	20645.25
2008Q3	76278.5625	40377.125	42885.25	21130.25
2008Q4	72581.4375	43483.875	45375.25	20469.75
2009Q1	50124.28125	47777	46481.5	13674.21875
2009Q2	45672.46875	51041	48070	12718.53125
2009Q3	43907.09375	54199	49363.25	12613.15625
2009Q4	44828.15625	57251	50361.25	13358.09375
2010Q1	52302.84375	63075.4375	50054.3125	18990.0625
2010Q2	57049.90625	64764.0625	50865.6875	19820.9375
2010Q3	62936.53125	65195.3125	51785.6875	19887.4375
2010Q4	69962.71875	64369.1875	52814.3125	19189.5625
2011Q1	83490.65625	55714.75	52922.8125	13787.9375
2011Q2	90651.09375	55002.25	54580.1875	13137.0625
2011Q3	96806.21875	55660.75	56757.6875	13297.5625
2011Q4	101956.0313	57690.25	59455.3125	14269.4375
2012Q1	106979.5938	66236.21875	65198.375	17025.1875
2012Q2	109767.1563	68949.53125	67926.125	19230.8125
2012Q3	111197.7813	70975.65625	70163.875	21858.8125
2012Q4	111271.4687	72314.59375	71911.625	24909.1875
2013Q1	106848.5313	73780.875	73590.15625	33126.46875
2013Q2	105464.2188	73419.625	74189.59375	35123.78125
2013Q3	103978.8438	72045.375	74130.71875	35645.65625
2013Q4	102392.4063	69658.125	73413.53125	34692.09375
2014Q1	106674.75	62661.625	71442.5625	28051.21875
2014Q2	102498.25	59686.875	69646.9375	25831.53125
2014Q3	95832.75	57137.625	67431.1875	23821.15625
2014Q4	86678.25	55013.875	64795.3125	22020.09375
2015Q1	62030.375	53420.9375	61227.75	20373.96875
2015Q2	53099.625	52106.0625	57956.25	19013.28125
2015Q3	46881.625	51174.5625	54469.25	17883.65625
2015Q4	43376.375	50626.4375	50766.75	16985.09375
2016Q1	45767.78125	50090.28125	43185.625	16389
2016Q2	46414.46875	50457.46875	40517.375	15924
2016Q3	48500.34375	51356.59375	39098.875	15661.5
2016Q4	52025.40625	52787.65625	38930.125	15601.5
2017Q1	58371.0625	56053.15625	42357.6875	16752.4375
2017Q2	64221.9375	58027.09375	43749.8125	16694.0625
2017Q3	70959.4375	60011.96875	45453.0625	16434.8125

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2017Q4	78583.5625	62007.78125	47467.4375	15974.6875
2018Q1	95511.96875	62132.1875	49733.5625	12741.8125
2018Q2	101542.2813	64902.8125	52393.9375	12908.6875
2018Q3	105092.1563	68437.3125	55389.1875	13903.4375
2018Q4	106161.5938	72735.6875	58719.3125	15726.0625
2019Q1	103193.875	85125.90625	66439	25417.5
2019Q2	99925.125	88020.84375	68817	26079.5
2019Q3	94798.625	88748.46875	69908	24753
2019Q4	87814.375	87308.78125	69712	21438
2020Q1	78972.375	83701.78125	68229	16134.5
2020Q2	68272.625	77927.46875	65459	8842.5
2020Q3	55715.125	69985.84375	61402	4400
2020Q4	41299.875	59876.90625	56058	2200

قياس وتحليل اثر مكونات الإنفاق العام على مكونات الميزان التجاري في العراق للمدة (2004-2020)	
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Measuring and analyzing the impact of the components of public spending on the components of the trade balance in Iraq for the period (2004-2020)	
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