MEASURING THE EFFECT OF TOTAL INJECTION ELEMENTS ON ECONOMIC GROWTH IN IRAQ FOR THE PERIOD (2004-2020) USING THE ERROR CORRECTION MODEL

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Purpose: The paper aims to measure the impact of the dynamic relationship between the elements of total injection (private investment spending, comic spending, exports) on the one hand and the GDP growth rate that expresses economic growthusing the ARDL model.

Theoretical framework: The elements of total injection are one of the main components of total demand: private investment spending, government spending, and exports. Private spending is one of the main activities that play an essential role in the country's economic development Government spending is one of the most crucial fiscal policy tools used by the government to influence and stimulate economic activity. Good export performance is an essential indicator of that government's foreign trade. All these elements significantly impact economic activity by producing and employing these elements in GDP and its growth.

Design/methodology/approach: To test the hypothesis that there is a direct relationship between the elements of total injection and GDP growth. Quarterly data were used for the duration of (2004-2020).

Findings: The results of the non-tests showed a common complementarity and a long-term equilibrium relationship between the total injection and the rate of economic growth. Therefore the results of the models proved the validity of the paper's hypothesis.

Research, Practical & Social implications: the article suggested the need for the government to support the private sector, build complementary relations with it, restructure government spending and seek to increase its productivity to achieve financial returns.

Originality/value: The research provides the government with support to the private sector, building complementary relations with it, restructuring government spending, and striving to increase its productivity to achieve financial returns from it, in addition to the need to diversify the economy and try to get rid of the unilateral economy.

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MEDINDO O EFEITO DOS ELEMENTOS TOTAIS DE INJEÇÃO NO CRESCIMENTO ECONÔMICO NO IRAQUE PARA O PERÍODO (2004-2020) USANDO O MODELO DE CORREÇÃO DE ERROS

RESUMO
Objetivo: O artigo visa medir o impacto da relação dinâmica entre os elementos da injeção total (gastos de investimento privado, gastos cômicos, exportações) por um lado e a taxa de crescimento do PIB que expressa o crescimento econômico usando o modelo ARDL.

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Referencial teórico: Os elementos da injeção total são um dos principais componentes da demanda total: gastos com investimento privado, gastos do governo e exportações. O gasto privado é uma das principais atividades que desempenham um papel essencial no desenvolvimento econômico do país. O gasto do governo é uma das ferramentas de política fiscal mais importantes usadas pelo governo para influenciar e estimular a atividade econômica. O bom desempenho das exportações é um indicador essencial do comércio exterior daquele governo. Todos esses elementos impactam significativamente a atividade econômica ao estimular e empregar esses elementos no PIB e seu crescimento.

Desenho/metodologia/abordagem: Testar a hipótese de que existe uma relação direta entre os elementos da injeção total e o crescimento do PIB. Dados trimestrais foram usados para a duração de (2004-2020).

Resultados: Os resultados dos não-testes mostraram uma complementaridade comum e uma relação de equilíbrio de longo prazo entre a injeção total e a taxa de crescimento econômico. Portanto, os resultados dos modelos provaram a validade da hipótese do artigo.

Pesquisa, implicações práticas e sociais: o artigo sugeria a necessidade de o governo apoiar o setor privado, construir relações complementares com ele, reestruturar os gastos do governo e buscar aumentar sua produtividade para obter retorno financeiro a partir dele.

Originalidade/valor: A pesquisa oferece ao governo um apoio ao setor privado, construindo relações complementares com ele, reestruturando os gastos do governo e buscando aumentar sua produtividade, a fim de obter dele retornos financeiros, além da necessidade de diversificar a economia e tentar obter livrar-se da economia unilateral.

Palavras-chave: Injeção Agregada, Investimento Privado, Gastos Governamentais, Exportações, Crescimento do PIB, Modelo ECM.

MEDICIÓN DEL EFECTO DE LOS ELEMENTOS DE INYECCIÓN TOTAL EN EL CRECIMIENTO ECONÓMICO EN IRAK PARA EL PERÍODO (2004-2020) UTILIZANDO EL MODELO DE CORRECCIÓN DE ERRORES

RESUMEN

Propósito: El trabajo tiene como objetivo medir el impacto de la relación dinámica entre los elementos de la inyección total (gasto de inversión privada, gasto cómico, exportaciones) por un lado y la tasa de crecimiento del PIB que expresa el crecimiento económico utilizando el modelo ARDL..

Metodología: Analisamos o perfil das publicações internacionais sobre blended learning em gestão e negócios de 2001 a 2021. Identificamos quando, quem, onde e o quê foi publicado sobre o assunto, destacando os autores e periódicos de maior impacto com base no índice h e CiteScore (Scopus), além de explorar a cooperação entre países.

Conclusiones: Los resultados de las no pruebas mostraron una complementariedad común y una relación de equilibrio a largo plazo entre la inyección total y la tasa de crecimiento económico. Por lo tanto, los resultados de los modelos probaron la validez de la hipótesis del artículo.

Implicaciones de la Investigación:

el artículo sugería la necesidad de que el gobierno brinde apoyo al sector privado, construya relaciones complementarias con él, reestructure el gasto público y busque aumentar su productividad para lograr rendimientos financieros de este.

Palabras clave: Inyección Agregada, Inversión Privada, Gasto Público, Exportaciones, Crecimiento del PIB, Modelo ECM.

INTRODUCTION

The elements of total injection are one of the main components of total demand: private investment spending, government spending, and exports(Hartman, Martin, Benson, Catlin, & Team, 2020). Private expenditure is one of the main activities that play an essential role in the country's economic development Government spending is one of the most crucial fiscal policy tools used by the government to influence and stimulate economic activity. In addition, good

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export performance is an essential indicator of that government's foreign trade. All these elements significantly impact economic activity by enabling and employing these elements in GDP and its growth(Borowski, 2021). However, as a result of the problematic security, economic and political conditions witnessed by Iraq, the deterioration of its economy as well as its lack of a broad and diversified production base, this has led to a significant weakness in private investment, consumer and non-productive government spending, as well as a considerable disadvantage in Iraq's non-oil exports, and therefore all these factors have made the of GDP growth is not at the level to be achieved. The importance of the paper stems from the critical role of the elements of total injection into GDP, which is why the article tries to highlight this role and give a clear perception of the Iraqi economy(Dodge, 2021).The paper is based on testing a statistically significant direct relationship between the elements of total injection and GDP by analyzing the relationship between the elements of total injection and GDP in the Iraqi economy. The author used a method that combines descriptive and analytical as well as the standard method to measure and analyze time series data for paper variables. The paper covered the Iraqi economy (2004-2021).

LITERATURE REVIEW
The Elements of Total Injection and GDP in Iraq (2004-2020)
Private Spending

Private investment spending is a significant component of the total demand. It is no less critical than consumption because of the vital role it plays in the field of economic development and economic growth. Investment is defined as spending that leads to an increase in the productive capacity of the national economy, that is, spending that leads to new additions in the national economy of companies, Factories, buildings, bonds, plus stocks (Chang et al., 2019)**.**Table 1 shows the reality of private investment spending in Iraq for the period studied. We note that in 2004 it amounted to about (9005771.6) million dinars, which increased in 2005 to 16291564 million dinars, and an annual growth rate of almost 90%, the reason for the increase. This increase is due to the improvement of the economic situation in Iraq after lifting economic sanctions in 2003 and the rise in oil revenues (Hussein, 2022)**.**In 200, 7 fell to 10411889 million dinars at a negative growth rate of -42.42 due to political turmoil, deteriorating security, and declining investment rates. It began to recover the following year and then dropped again in 2009 due to the repercussions of the 2008 global crisis. Oil prices have fallen, and terrorist gangs have taken control. In some areas of Iraq, which led to a decrease

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in private investment spending in 2014 at a negative growth rate of (-20.3), and continued to decline for the years201 5 and 2016 at a negative annual growth rate of (-14.4) and (-12.8) respectively, and the reason for this decline is due to the reflection of the security conditions witnessed by Iraq since the middle of the year. The year 2014. After the relative improvement in the security conditions of the country and the rise in oil prices, private investment spending returned to the forefront and most of the positive annual growth rate in 2017 and 2018, reaching (6.1) and (10.8) respectively, and in 2020, it re-declined at a rate of -38.0 due to the outbreak of the Covid-19 pandemic.

Table 1. Elements of Total Injection and GDP in Iraq for the Period (2004-2021)

Years	Private Investment Spending 1	Annual Growth Rate	Government spending 2	Annual Growth Rate	Exports 3	growth rate	Local Natc GDP 4	growth rate Annual
2004	9005771.6	…..	32117491.3	.....	29956020	….	53235358.7	….
2005	16291564	80.9	26375175.1	17.8-	39963945	33.4	73533598.6	38.1
2006	18082946	10.9	38806679.3	47.1	48780390.6	22.0	95587954.8	29.9
2007	10411889	-42.4	39031232.2	0.5	51158039.1	4.9	111455813.4	16.6
2008	23842998	129	59403374.7	52.1	79028558.7	54.5	157026061.6	40.8
2009	14758289	-38.1	55589721	6.4-	51473565	-34.9	130643200.4	-16.8
2010	25716187	74.2	70134201	26.1	63880713	24.1	162064565.5	24.05
2011	26593885	3.4	78757667	12.2	91531318	51.1	217327107.40	34.09
2012	29181898.1	9.7	105139575	33.4	113151788.2	23.6	254225490.7	16.9
2013	44974772.2	54.1	119127556	13.3	108514489.6	- 4.0	273587529.2	7.6
2014	35837402.9	-20.3	112192126	5.8-	91336900.2	-15.8	266332655.1	-2.6
2015	30650095	-14.4	82813611	26.1-	57526900.3	-37.1	194680971.8	-26.9
2016	26703209.3	-12.8	73571003	11.1-	51742500.6	-10.0	196924141.7	1.1
2017	28330275.9	6.1	75490115	2.6	70950100.3	37.1	225722375.5	14.6
2018	31400281.6	10.8	72052900	0.04-	75181800.7	5.9	251064479.9	11.2
2019	39400281.6	25.4	62052900	-13.8	84950100.3	12.9	262917150.0	4.7
2020	24400281.6	-38.0	53052900	-14.5	77950100.3	-8.2	198774325.4	-24.3

Source: 1,2,3,4 column based on
-Ministry of Finance, General Budget Department,
-Ministry of Planning and Development Cooperation, Central Bureau of Statistics, National Accounts, Financial Statistics for Separate Years
- Annual growth rates from the author's account are based on the following formula: $\frac{Y_1 - y_2}{y_1} * 100$

Government Spending

The concept of government spending, in general, has evolved with the development of the ideas of economic schools, as the classical school considers that all government expenditures are consumer expenditures and should be limited to traditional government functions (defense, security, justice, some public utilities), while the Keynesian school sees otherwise as calling for the need for government intervention in economic life to achieve

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economic and social goals through the use of fiscal policy tools, especially government spending(Al-Obaidi & Almashhadani, 2022).

Returning to Table 1, we find that government spending has fluctuated between rising at times and falling at other times and depending on the conditions that have improved and deteriorated the internal security situation and the global economic situation. The period began at a negative annual growth rate of about 17.8 - it rose in 2005 to 47.1 and reached its maximum decline in 2015 due to the lack of approval of the 2014 budget and the drop in oil prices, and the outbreak of the Coronavirus in 2020.

The Exports

Exports are a component of foreign trade and are defined as goods and services produced in one country and what the population of another country buys (Al-Karawi & Almashhadani, 2022). These exports maybe oil and non-oil (Hameedi, Union, Talab, &Almagtome, 2022). However, the nature of the structure of exports in Iraq is similar to most developing economies because they depend mainly on oil exports. This reflects the seriousness of specialization in the production and export of this commodity because its export revenues are subject toconstant fluctuations (A. H. Almagtome, Al-Yasiri, Ali, Kadhim, & Heider, 2020).

Table 1 shows the development of exports in Iraq for the period studied. We note from the Table that exports took a trend of increase at the beginning of the period except for some years because exceptional circumstances characterized them if exports in 2003 amounted to (22897246) million dinars and then increased to (75181800.7) million dinars in 2018 as a result of the increase in oil prices and quantities exported, as oil constitutes a percentage. All annual growth rates were favorable except for the years (2009, 2014, 2015, 2016) in which negative annual growth rates were recorded due to the impact of the repercussions of the 2008 public financial crisis, the failure to approve the 2014 budget, as well as the deterioration of security conditions. Iraq has witnessed a sharp decline in oil prices and quantities exported in other years.

Gross Domestic Product (GDP)

GDP means the total monetary value of all final goods and services produced within the country's geographical boundaries and produced by resident citizens and foreign nationals within a generally defined period(A. Almagtome, Khaghaany, & Önce, 2020).It is noted from

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this definition that GDP is the most reflective indicator of the level of economic activity and that any development in it will be reflected in the development of national income, leading to an improvement in the level of social well-being of the individual.

Returning to Table 1, we find that the GDP amounted to (**53235358.7**) million dinars in 200 4 and then increased to (251064479) million dinars in 2018 due to the openness of the Iraqi economy to the outside world, the lifting of economic sanctions, as well as the increase in oil prices and quantities exported. All annual growth rates were favorable except for the years (2009, 2014, 2015) in which negative annual growth rates were recorded due to the repercussions of the 2008 general financial crisis, the failure to approve the 2014 budget, as well as the decline in the security conditions witnessed by Iraq and elsewhere. A sharp drop in oil prices and quantities exported in 2014 and 2015 and the Corona pandemic in 2020.The second sectionis to analyze the relationship between the elements of total injection and GDP in Iraq

MATERIALS AND METHODOLOGY

A correlation test reveals the link between macroeconomic variables, such as imports and GDP. The claim of causation between these factors cannot, however, be relied only on correlation coefficients. Some academics argue that cause-and-effect relationships are more significant, providing instances of pseudo-correlation and defining the distinction between correlation and causation by declaring, "correlation is not causation" (Barrowman 2014). In order to assess the Effect of Total Injection Elements on Economic Growth in Iraq, an error-correcting model is used in this research.

RESULTS AND DISCUSSION

Analysis of the relationship between private investment spending and GDP

Private investment spending (the private sector) plays a crucial role in achieving GDP growth rates in most countries, whether developing or provisioning, given the potential of this sector in various economic fields **(Awad et al., 2019, 142).** The ratio of the contribution of private investment expenditure to GDP can trace the relationship's trajectory. We note through Table (2**)** the decrease in the relative importance of public spending in both private and government parts in the components of GDP throughout the period studied, which means that public investment spending is inefficient and that most of it are operational spending for the government and consumer spending for private spending, despite the call for the philosophy

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of the economy towards a market economy. Personalexpenditures accounted for only 16.9% of GDP at the beginning of the period and then gradually rose and then decreased and did not exceed 23% at best in 2005   due to the lack of productive investment programs and the dependence of the   Iraqi economy on the commodity of oil in the formation of GDP and the lack of diversification of the adequate base due to the entireness of the economy. As for the contribution of the government agreement, it was not in the best condition for private spending. An apparent fluctuation in its time and period began with a high rate of about 60% in 2004. Then its importance in the GDP decreased until it reached the lowest percentage in the last years of the period, especially in 2019 and 2020, due to the awareness witnessed by Iraq of the beginning of the massive demonstrations. Then the Corona pandemic outbreak greatly affected the implementation rates of government investment programs and directed spending to the health sector to face the epidemic.

As for the contribution of exports, itwas noted that the contribution of exports was relatively high in the components of the GDP at the beginning of the period due to the openness of the Iraqi economy to the outside world and the increase in exports, especially oil. However, despite the high contribution rates, some years have witnessed a decrease in these percentages as a result of the instability of the security situation of the country, as well as the events it experienced in two years, 2015 and 2016, and the decline in oil prices in 2018 led to a decline in the value of Iraqi exports.

Table 2. Percentage of the contribution of total injection elements to GDP

Years	Private Investment Expenditure to GDP%	Government spending to GDP%	Exports to GDP%
2004	16.9	60.3	56.2
2005	22.1	35.8	54.3
2006	18.9	40.5	51.03
2007	9.3	35.01	45.8
2008	15.1	37.8	50.3
2009	11.2	42.5	39.4
2010	15.8	43.2	39.4
2011	12.2	36.2	42.1
2012	11.4	41.3	44.5
2013	16.4	43.4	39.6
2014	13.4	42.1	34.2
2015	15.7	42.5	29.5
2016	13.5	37.3	26.2
2017	12.5	33.4	31.4
2018	12.5	28.6	29.9
2019	14.9	23.6	32.3
2020	12.2	26.6	39.2

The source: prepared by the author based on tables (1).

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THE ELEMENTS OF TOTAL INJECTION AND GROSS DOMESTIC PRODUCT

The characterization of the variables used in the model

The model consists of three independent variables, namely private investment spending I, government spending G, exports EX, and a dependent variable, economic growth, that can be expressed at the GDP growth rate.

The ECM error correction model was used, and the annual data was converted into quarterly data to increase the sample size and obtain acceptable results.

The general version of the model was as follows:

$$\Delta Y_t = \alpha_1 \Delta X_1 + \alpha_2 e_{t-1} + e_t$$

Δ: The first Difference. E_t: error limit. E_{T-1}: Error correction limit The percentage of imbalance in the previous period. It is a model used to illustrate the approach of the time series to the equilibrium state in the long term and the changes that occur in the short term; that is, the error correction model has the potential to test and estimate the relationship between the variables of the model in the short and long time and avoids standard problems caused by false regression (Greene, 2008).

The Model Tests

First: Sleep Test

The model test requires some pre-estimation tests to ensure the validity of these variables for estimation, including the sleep test to ensure that they are free of the root of the unit, using the ADF test and as shown in Table 3.

Table 3. Result of the silence test for model variables according to the A.D. test

Test Type	1st Difference			Level			Variables
	Prob.	Critical value	ADF-t	Prob.	Critical value	ADF-t	
None	0.0276	-2.600471 -1.945823 -1.613589	-2.012090	0.9989	-4.103198 -3.479367 -3.167404	0.436498	GDP
None	0.0273	-2.600471 -1.945823 -1.613589	-2.206654	0.9985	-4.124265 -3.489228 -3.173114	0.355595	I
Constant & Trend	0.0008	-2.600471 -1.945823 -1.613589	-3.472974	0.0003	-4.124265 -3.489228 -3.173114	-5.316430	G
None	0.0010	-2.600471 -1.945823 -1.613589	-3.384044	0.1003	-4.113017 -3.483970 -3.170071	-3.168797	Ex

Source: From the work of the author based on the Eveiws1 program

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We note from the Table above that all model variables are not static at their original levels,which is a predominant nature in economic variables because of their instability at their original normal position. Still, they achieved dormancy after taking the first Difference where the calculated value of the test was more significant than the tabular value as well as the probability value P-Value was less than 0.05, which means accepting the alternative hypothesis that states that the variables are dormant and free of the root of the unit and are integrated of the degree (I~1).

Testing Joint Integration

A joint integration test was performed to find a short- and long-term equilibrium relationship between model variables. Based on the results of the dormancy tests of the variables that showed that the variables are complementary of the same degree at the first Difference (I~1), it is possible to use the Johansson and Juse lius test, which adopts two types of tests to determine the number of common integration vectors: the trace test and the Maximum eigenvalues test as shown in Table 4.

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Table 4. Johansson-Heslos Joint Integration Test Results
Sample (adjusted): 2004Q4 2020Q4
Included observations: 65 after adjustments
Trend assumption: Linear deterministic trend
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.329818	75.88210	69.81889	0.0151
At most, 1 *	0.305735	49.86869	47.85613	0.0319
At most 2	0.228213	26.15006	29.79707	0.1243
At most 3	0.107022	9.311995	15.49471	0.3373
At most 4	0.029621	1.954460	3.841465	0.1621

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Own Statistic	0.05 Critical Value	Prob.**
None *	0.329818	36.01341	33.87687	0.0199
At most, 1 *	0.305735	43.71863	27.58434	0.0449
At most 2	0.228213	16.83807	21.13162	0.1798
At most 3	0.107022	7.357534	14.26460	0.4477
At most 4	0.029621	1.954460	3.841465	0.1621

Source: From the author's work based on the results of the Eveiws12 program

We can see from Table 4 that there are at least two vectors for joint integration. The Table showed that the calculated value λ of the first vector (75.882) is greater than the critical value (69.818) at a significant level of 0.05 and with a considerable probability of 0.0151. For the second vector, the calculated value was λ (49.8686), which is greater than the critical value (47.8561) at a significant level of 0.05, and the probability value was substantial and amounted to 0.0319.

The maximum value test also indicates the presence of two vectors of co-integration. The calculated value of the full value of the first vector was 36.013, which is greater than the critical value of 33.8768 at a significant level of 5% and a significant probability of 0.0199. For the second vector, the calculated value was (43.718), which is greater than the critical value (27.584) at a significant level of 0.05, and the probability value was substantial andamounted to 0.0449. Based on these results, the null hypothesis (r≤0) was rejected, and accept the alternative hypothesis (r=1), which provides for a vector of co-integration, i.e., the existence of a long-term equilibrium relationship between the official exchange rate on the one hand and the

rate of economic growth, the rate of inflation, the balance of trade balance and capital flows on the other.

Estimation of ECMError Correction Model

Before starting the estimation, it is necessary to determine the optimal slowdown periods for the model based on several tests such as A.C., SC, H.Q., and as in Table 5, which shows the determination of optimal slowdown periods for the variables involved in the estimation of the model based on the smallest value of the test of the three seconds that are used to determine the period of slowing down of the Aic, Sc, H.Q.) which can achieve the best estimate for a model is at the third deceleration period

Table 5. Optimal slowdown periods for the model

VAR Lag Order Selection Criteria
Exogenous variables: C
Sample: 2004Q1 2019Q4
Included observations: 59

Was	LogL	LR	FPE	AIC	SC	HQ
0	-1794.046	On	2.10e+20	60.98461	61.16067	61.05334
1	-1560.119	420.2751	1.77e+17	53.90235	54.95872	54.31471
2	-1491.265	112.0337	4.08e+16	52.41577	54.35246*	53.17177
3	-1374.513	101.2942*	1.34e+16*	51.00044*	55.57807	52.78736*
4	-1465.064	13.98378	1.05e+17	53.22250	56.91982	54.66578
5	-1475.920	22.36804	5.94e+16	52.74304	55.56004	53.84268

Source: Prepared by the author based on the results of the Eviews 12 program

The error correction model can be estimated using three slow periods, as Table 6 shows the model estimation results. We note that the program omitted two independent variables, namely government spending and exports, from the model, which indicates the insignificance of the variables and the promise of their impact on economic growth according to the available data. The value of the parameter of 0.23 showed that a change in private investment by 1% leads to an increase in economic growth by 23%, which is low but somewhat acceptable due to the weak efficiency of private investment productivity in Iraq. In the long term, the model proved the existence of a long-term relationship through the error correction coefficient, which was negative, moral, and less than the correct one, which means that it met the conditions for admission and that the period needed by variables to make adjustments and return to the equilibrium in the long term is about 6.5 chapters, about a year and a half of time. The model also passed statistical tests where the correction coefficient was about 64%, i.e., 64% of the changes in economic growth are due to changes in private investment, and the model is free of

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the problem of self-correlation through the value of Darbin Watson, which amounted to about 2.

Table 6. ECM error correction model estimation results

ARDL Error Correction Regression
Dependent Variable: D(EC)
Selected Model: ARDL(2, 1, 0, 0)
Case 2: Restricted Constant and No Trend
Sample: 2004Q1 2020Q4
Included observations: 66

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EC(-1))	0.581266	0.093631	6.208048	0.0000
D(I)	0.238297	0.087056	2.737283	0.0082
CointEq(-1)*	-0. 15287	0.004657	-3.282439	0.0017

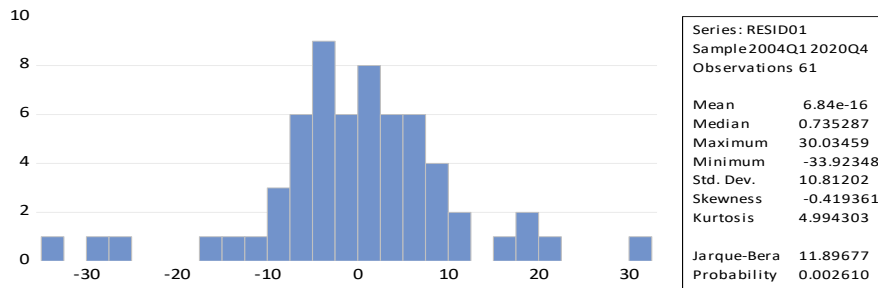|			
R-squared	0.642078	Mean dependent var	1091177.
Adjusted R-squared	0.630715	S.D. dependent var	3597865.
S.E. of regression	2186380.	Akaike info criterion	32.07778
Sum squared resid	3.01E+14	Schwarz criterion	32.17731
Log-likelihood	-1055.567	Hannan-Quinn criteria.	32.11711
Durbin-Watson stat	2.037005		

Source: Prepared by the author based on the results of the Eviews 12 program

VAR Form Validity Test

To confirm the validity of the form, some tests must be carried out on the results of the estimate, including:

A.   Table 14 shows the results of the medical distribution test, which tests the nullity hypothesis, i.e., the non-distribution of the residue naturally versus the hypothesis of the distribution of the residues naturally versus the hypothesis of the distribution of the residues naturally distributed, as the results indicate the results of The Table shows that the probability value of the test is 0.0026 which is less than 0.05 which means accepting the null hypothesis, i.e., not distributing the residue usually.

Table 7. Normal distribution of the remnants of the model

Series: RESID01	
Sample 2004Q1 2020Q4	
Observations 61	
Mean	6.84e-16
Median	0.735287
Maximum	30.03459
Minimum	-33.92348
Std. Dev.	10.81202
Skewness	-0.419361
Kurtosis	4.994303
Jarque-Bera	11.89677
Probability	0.002610

Source: From the author's work based on the results of the Eviews12 program

### B.   Results of the test of the self-correlation of the LLC

The L.M. Test is used to detect the autocorrelation problem in the model. Table 15 shows that the model is devoid of the self-correlation problem because the probability value of the F test is more significant than 0.05 except for the fourth period, which means accepting the null hypothesis that the model is free of the self-correlation problem.

Table 8. L.M. Test

Was	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	33.55110	25	0.1179	1.420841	(25, 75.8)	0.1238
2	31.40255	25	0.1760	1.312589	(25, 75.8)	0.1834
3	12.26771	25	0.9843	0.457456	(25, 75.8)	0.9848
4	86.32425	25	0.0000	5.118259	(25, 75.8)	0.0000
5	34.22205	25	0.1032	1.455196	(25, 75.8)	0.1088
6	16.03354	25	0.9138	0.611274	(25, 75.8)	0.9164

Source: From the author's work based on the results of the Eviews12 program

C.   **Test the stability of the residues of the model:** The stability of the remnants of the estimated model can be ascertained by conducting a unit root test of the residues. For example, the following figure shows that the remaining ones are all stable because all points are within the circle.

Figure 1. Stability of residues

Inverse Roots of AR Characteristic Polynomial
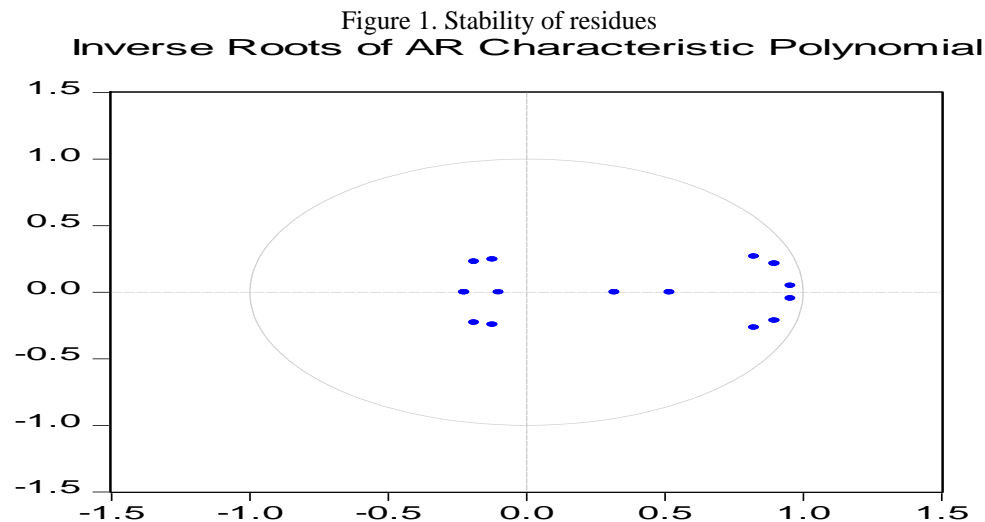
CONCLUSIONS

The elements of total injection are one of the main components of aggregate demand: private investment spending, government spending, and exports. Private expenditure is one of the critical activities that contribute significantly to the economy's growth. Government expenditure is an essential fiscal policy weapon to influence and boost economic activity. A nation's success in international commerce may be primarily gauged by its export performance. All these elements significantly impact economic activity by stimulating and employing these elements in GDP and its growth. The elements of total injection constitute only a small percentage of the GDP in Iraq and the privatization of private and government investment spending. This indicates the weak efficiency of investment in private and government parts and its weak productivity as a percentage of GDP. Exports accounted for a good portion of GDP due to the opening of the Iraqi economy to the outside world after 2003 and the increase in oil exports, which constitute a large part of total exports. The co-integration test results revealed at least two co-integration vectors between independent variables on the one hand and the dependent variable on the other, indicating a short- and long-term equilibrium relationship. The results of the estimate showed the deletion of government hypocrisy and exports from the model, which suggests a defect in this relationship or the insignificance of the impact of these variables on the rate of economic growth.

The results of the estimated parameters in the short term of the two variables revealed a direct relationship between them, which is consistent with the logic of the economic theory. The error correction coefficient represents the long term, which determines the speed of structural adjustments to return to equilibrium in the long term. It met the conditions of acceptance, which was negative and moral, and explained that the return to balance needs 6

time periods, i.e., about a year and a half. Therefore, It is necessary to pay attention to the efficiency of the productivity of public spending, both private and public, to give it the most significant role in achieving high economic growth rates and increasing its contribution to the GDP. The need for a complementary relationship between them is not competitive or alternative. The private sector must have a role in the philosophy of the market economy and encourage it through tax exemptions and control of border crossings. In addition, there must be an actual (accurate) financial allocation in the budget and permanent support for private investment projects to advance this on the one hand and increase the contribution to GDP on the other. There are fake jobs, highly inflated salaries, unjustified tax breaks for large salaries, and a lot of unreasonable expenses, so the cost of current spending must be gradually returned and directed in favor of investment spending to address this imbalance, in addition to running government spending to achieve financial returns from it. The need to diversify Iraq's non-oil exports through developing productive economic sectors, such as agriculture and industries, depends little on oil exports, especially in crises facing the country. Encouraging private investment spending by facilitating private investment operations by facilitating the procedures for setting up projects and providing the necessary incentive support to stimulate investment. The fact that it only looked at data from 2004-2020 and not 2021-2020 is one of the study's flaws. For this reason, we propose that researchers examine Iraq's recent economic development from a sectoral perspective, such as agriculture, manufacturing, or mining.

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