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" Analysis of the Reality of The Fixed Exchange Rate System and Economic Growth in Iraq After 2003"

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ABSTRACT
The structural imbalance is one of the most critical challenges the Iraqi economy has faced and continues to suffer for many reasons, including the political and economic system's inefficiency in managing financial resources. Whether natural or human or mismanagement toward goals that would maximize social and economic benefits dynamically and sustainably. The weak contribution of the industrial and agricultural sector to the formation of gross domestic product and the limitation of the role of the industrial sector in the production of consumer goods dependent on the international market to meet their intermediate and capital needs. Consistency of oil sector economic activity. After the events of 2003, Iraq's Central Bank gained independence following Law 56 of 2004, as this year is a fundamental and fundamental shift in monetary policy, coinciding with Iraq's return to the international market after lifting the economic blockade and issuing a new national currency. In its Global specifications, it is comparable to other currencies, as the bank started implementing the currency sales window as a tool for exchange rate stability. However, the exchange system type and arrangements currently raise controversy for everyone. Is it a fixed or floating exchange system between these cases? There were many views on this issue, and monetary policymakers in the Iraqi Central saw that the exchange system used was a floating system. Still, other studies indicated that Iraq's exchange rate system is stable and very stable.

Introduction

Due to their various impacts on the overall macroeconomy, the changes in exchange rates at the international level have sparked extensive economic discussions. The majority of macroeconomic variables are directly linked to the fluctuation of exchange rates and, on the one hand, to identify the nature of the relationship and, on the other hand, to reduce the adverse effects of these price changes, as they create risks that increase with the increasing intensity of these fluctuations, affecting prices, trade and public expenditure and economic growth (Amagtome & Alnajjar, 2020). Therefore, monetary and economic policymakers, in general, are concerned about the stability of the exchange rate in all economies, because the exchange rate system plays a role in the stability of the economy and is, therefore, a catalytic tool for achieving the objectives of economic growth, as well as its important effects on production and the balance of payments. Since the renting nature of the Iraqi economy and its reliance on foreign-currency oil revenues, which contribute to the stability of the Iraqi dinar exchange rate through the currency sale window, and because of the effectiveness of the Iraqi Central Bank's exchange-rate system and the extent of its suitability for the Iraqi economy. In Iraq, the monetary policy adopted the fixed exchange rate system by linking it to the U.S. dollar, because the U.S. dollar is the main revenue collection currency in Iraq, the exchange rate was characterized by relative stability during the period (2004-2018). but there are major questions about the role of the exchange system used in stimulating economic growth during that period and the role of the exchange system in stimulating economic growth during that period (Abed, Ewaid, & Al-Ansari, 2019).

Literature Review

Exchange Rate Effect on Inflation

Dornbusch (1982) explained the relationship between the exchange rate and inflation for the first time in (1987). He developed the econometric model according to the model and examined the exchange rate effect on prices. The work of Dornbusch was the basis for additional research in examining the relationship between the exchange rate and local prices and Dornbusch spoke of market intensity, the volume of imports, alternatives to imports and local channels of production in emerging economies, in particular in Iraq (A. H. Almagtome, Al-Yasiri, Ali, Kadhim, & Bekheet, 2020). After the system was changed, many of Iraq's economic facilities were disrupted with a rise in price levels and, in two cases, inflation levels were reported: the first was high price rates for the period (2003 to 2007) and the second was low price rates for the period (2003-2007). (2008-2018). Tabula (1) notes that, after the lifting of the economic blockade, security instability, and the shift in the domestic demand structure resulting from the improvement of living standards and monetary policy, the supply of cash increased to (15,5 trillion Iraqi dinars in 2006, which was due to the economy's opening towards the outside world. Besides interruption and weak manufacturing flexibility, the increase in imports and the record high for foodstuffs reflected the production system. In 2003 rental rose (50,8) and (24,7) points to (87,8) and (80,7) respectively in 2006 in order to contribute to an increase from (28,7) points in the consumer price index. In 2003, the highest rate of (76.4) was the annual inflation rate (53.1 per cent) in 2006. Law no. (56) of 2006 fully stipulated the autonomy of the Central Bank and became a priority for its price stability objectives, but its role was limited during the period (2003-2007). As inflation, fluctuations coincide with fluctuations of parallel exchange rates, and in the same direction due to the deterioration of the security situation, rumours are spreading, and the dollar is decreasing at the Central Bank due to the increase of demand from the banks and the importers of the Ministry of Commerce and to increasing hedges. In the same Table, inflation in the second case fell at a rate of (12.7 per cent) in 2008, due to the Central Bank of Iraq's success in targeting inflation as a primary objective in monetary policy using the currency sales window that improved the currency of the dinar on the dollar, in order to achieve relative stability in f.

(0.4 per cent). We conclude that exchange rate stability at a high level has a positive effect on inflation (Faisal, 2019). Tariffs and its stability at very low levels and, then, the monetary authority's success in targeting inflation through exchange rate stability. Figure 1 illustrates the harmony between exchange rates and inflation rates.

Table (1). Evolution of Exchange Rates, Inflation Rate and Money Supply (2003-2018)

year	Official exchange rate	Parallel exchange rate	Consumer Price Index	inflation rate	Money supply in the narrow sense (million/I.D.)	growth rate%
2003	**1836**	**1936**	**28,7**	**33,5**	**5773601**	**91,6**
2004	**1453**	**1453**	**36,4**	**26,8**	**10148626**	**75,8**
2005	**1469**	**1472**	**49,9**	**37,1**	**11399125**	**12,3**
2006	**1467**	**1475**	**76,4**	**53,1**	**15460060**	**35,6**
2007	**1255**	**1267**	**100,0**	**30,9**	**21721167**	**40,5**
2008	**1193**	**1203**	**112,7**	**12,7**	**28189934**	**29,8**
2009	**1170**	**1182**	**122,1**	**8,3**	**37300030**	**32,3**
2010	**1170**	**1185**	**125,1**	**2,5**	**51743489**	**38,7**
2011	**1170**	**1196**	**132,1**	**5,6**	**62473929**	**20,7**
2012	**1166**	**1233**	**140,1**	**6,1**	**63738571**	**2,02**
2013	**1166**	**1232**	**142,7**	**1,9**	**73885000**	**15,9**
2014	**1166**	**1214**	**145,9**	**2,2**	**72692448**	**1,6-**
2015	**1167**	**1247**	**148**	**1,4**	**65435435**	**9,9-**
2016	**1182**	**1275**	**148,7**	**0,5**	**14534751**	**77,7-**
2017	**1184**	**1259**	**149,1**	**0,2**	**15246162**	**4,9**
2018	**1190**	**1208**	**149,7**	**0,4**	**15350567**	**0,7**

Source: (Al-Azzawi & Al Dulaimi, 2020)

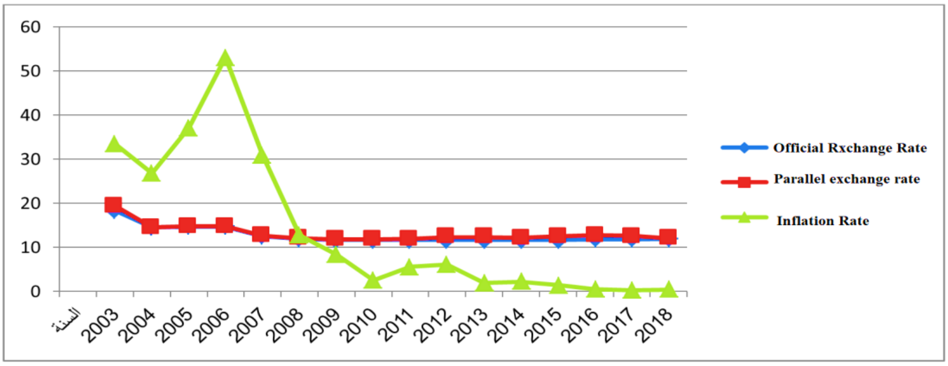


Figure (1) Inflation Rate Response to Exchange Rate Changes

1.1 Local Exchange Rate Effect on B.O.P

A causal relationship is the origin of the relationship between the exchange rate and the balance of payments. If a country's balance of payments suffers from a deficit, this leads to high demand for foreign currencies, in contrast to a decrease in the local currency, leading to a deterioration in its exchange rate, and vice versa, in the case of a surplus (Akeel Almagtome, Khaghaany, & Önce, 2020). The balance of payments, supply and demand for the currency, and then its exchange rate, have a relationship. Increasing the local currency's supply over the need for actual demand leads to a decrease in its exchange rate, followed by a reflection on this increase in exports and a decrease in imports and then a balance of payments surplus in the trade balance (Kbelah, Almusawi, & Almagtome, 2019). This situation is taking place in the light of an economy which enjoys the flexibility of the production system and the diversity of its economic structure and of its external trade (Yin, Stecke, & Li, 2018). it not in an economy such as the Iraqi economy which suffers from its oil rentals, the weakness of its production system's flexibility and the distortion of its economic structure so that we can explain the impact of price changes. Table (2) shows an increase in the value of exports over the first five years, as they increased to (79028) in 2008 as a result of the increase in oil revenues resulting from the rise in the price of oil and the quantities exported from it, leading to an increase in the value of total exports, the highest percentage of which is oil. In 2009, the value of exports decreased to (51473.5) and at a rate of decrease of (-34.8%) compared to the previous year, due to the decrease in world oil prices due to the global financial crisis and then gradually increased by (113151.7) until 2012. This substantial increase is mainly due to the recovery of oil prices after the aforementioned crisis as well as the increase in quantities (A. Almagtome & Abbas, 2020). With regard to imports, we note that there was a clear fluctuation in the direction of the increase and decrease, as there was a clear increase to (75910.9) in 2013 and this increase was indirectly linked to the increase in public expenditure in the country as a result of the increase in public revenues resulting from the increase in oil prices and the quantities exported from the country, and that the increase in expenditure led to an increase in public revenues as a result of the increase in oil prices and the quantities exported from the country. The decrease in government revenues due to the decrease in oil prices in 2014 and the increase in military expenditure to counter terrorist groups had a significant impact on the decrease in imports to reach (48578.2) in 2015, and the rate of decrease (-36%) compared to 2013 and increased again due to improved oil prices and military stability.

1.2 The Exchange Rate Effect on Economic Growth

Changes in exchange rates, or their fluctuations, have positive and negative effects, both according to the exchange system used, and this depends on the extent of the change that has occurred and the extent of economic development, in particular of the banking sector that prevails in the country under study, in addition to the extent of the diversity of that country's productive structure. The exchange changes, and then the impact on the overall real and critical economic activity is the most responsive variable (Rapetti, Skott, & Razmi, 2012). On this basis, the effect of the changes in the Iraqi dinar exchange on G.D.P. can be explained on the basis of the fact that the Iraqi economy does not have the flexibility of its production system, the lack of diversification and the ability to export petroleum, solely to finance its expenditure activities and development programs with the underdevelopment of the commodity and service sectors (Khaghaany, Kbelah, & Almagtome, 2019). Thus, the impact of the oil sector will be excluded from the real gross product prices in this analysis as well. Table (2) and Figure (2) show that real output increased substantially to reach (54,961,3) billion Iraqi dinars in 2006, due to the high volume of output in the services sector so that the percentage of its contribution to the production of the product reaches the highest growth rates compared to other sectors (excluding oil) due to the increase in the elasticity of the product.

In spite of public expenditure services, there has been no significant improvement in the commodity sectors during that period, and this is due to the government's neglect of those sectors after 2003 on the pretext that productive investment in them has been left to the private sector and to foreign investment, given the lack of an environment such as (economic and security stability, infrastructure) It has had a significant impact on real output (A. Almagtome, Shaker, Al-Fatlawi, & Bekheet, 2019). During that period, imports (Table 2) increased, and non-oil exports were virtually non-existent, indicating a weak relationship between changes in exchange and actual output. It is also noted that it decreased in 2007 at a rate of (-4.5 per cent) to witness after that the continuation of its increase to reach (88554.2) billion Iraqi dinars in 2013, and that increase is due to the increase in output in the economic sectors (particularly manufacturing, agriculture, banks and services). It decreased significantly after reaching (71243.9) billion Iraqi dinars in output (particularly manufacturing, agriculture, banks and services) The volume of exports and the increase in security and military expenditure. In the light of these fluctuations, the fluctuations in the rise and fall of exchange rates will not affect real output, which has taken one direction, which makes us face the fact that the impact of exchange rates on real output is very small and that there are other factors that play the most important role in the impact, the most important of which is government spending, given the decrease in exports, other than the decrease in exports. Consequently, this situation requires the monetary authority represented by the Iraqi Central Bank to have a high dinar exchange rate against the U.S. dollar, because this increase has positive effects, particularly if the country is in the early stages of march economic development and has no products that seek to export even higher than its currency exchange rate is affected since this increase makes imports cheaper. Etc.

Table (2). Exchange Rates, Imports, Exports and Gross Domestic Product (2004-2018)

year	Official exchange rate	Parallel exchange rate	Imports	growth rate%	Exports	growth rate%	G.D.P. without oil	growth rate%
2004	1453	1453	34050.9	-	29956	-	45625.3	-
2005	1469	1472	45145.7	32.6	39963.9	33.4	51909.5	13.7
2006	1467	1475	36914.7	-18.2	48780.3	22.1	54961.3	5.8
2007	1255	1267	31422.7	-14.8	51158	4.9	52437.7	-4.5
2008	1193	1203	48249.7	53.5	79028.5	54.5	54290.1	3.5
2009	1170	1182	51326.1	6.4	51473.5	-34.8	56950	4.8
2010	1170	1185	55232.6	7.6	63880.7	24.1	64285	12.8
2011	1170	1196	60316.5	9.2	96531.3	51.1	68514.4	6.5
2012	1166	1233	73980.2	22.6	113151.7	17.2	78781.8	14.9
2013	1166	1232	75910.9	2.6	108514.4	-4.1	88554.2	12.4
2014	1166	1214	69948.8	-7.8	102738.4	-5.3	83676.8	-5.5
2015	1167	1247	48578.2	-30.5	57526.9	-44	74991.6	-10.3
2016	1182	1275	57353.3	18.1	51742.5	-10.1	73789.2	-1.6
2017	1184	1259	37361.2	-34.8	70950.1	37.1	71470.2	-3.1
2018	1190	1208	43804.5	17.2	100684.6	41.9	71243.9	-0.3

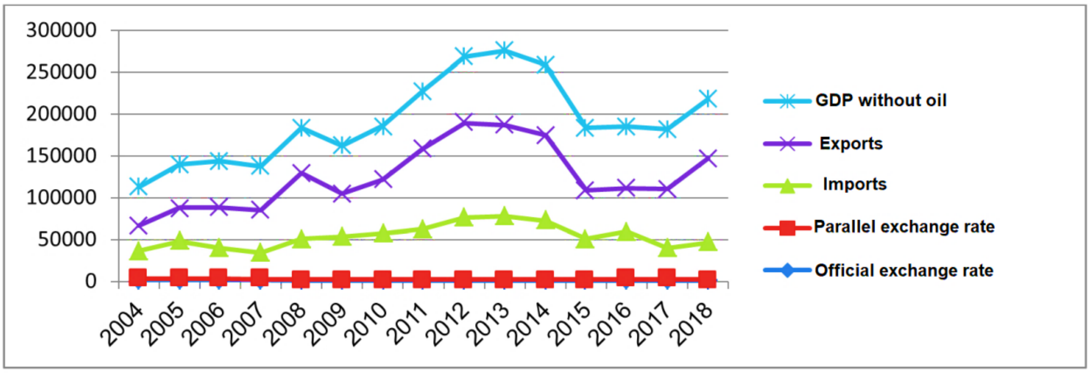


Figure (2). Balance of Payments Response to Exchange Rate Changes

2. RESEARCH METHODOLOGY

Results of the standard analysis of the effect of the dinar exchange rate on some variables of the Iraqi economy

A) Description of the model

After explaining the nature of the relationship from an analytical point of view, we now use the statistical program Eviews10 to measure it. This relies on the same information that was relied on in the research. In order to obtain more precise and realistic results, as well as their compatibility and economic theory, we have converted them from annual to quarterly data, and at this stage, it should be explained. In accordance with the following equations, the independent and dependent variables included in the model are:

GDP = a-b EX +U

M =a+b EX +U

X=a -b EX +U

I = a+ b EX + U

As: -

EX: the exchange rate, M: Imports, X: Exports, G.D.P.: gross domestic product, I: Inflation.

The main objective of using this model is to determine whether the exchange rate has a significant impact on imports and exports (the trade balance), G.D.P. (economic growth) and inflation. There is no doubt that the decrease in the exchange rate reduces imports and increases exports as a result of higher prices of foreign goods in return for domestic goods. Through the relative improvement of the balance of payments, this would increase economic growth rates (higher gross domestic product), and this is the result of the trade balance being corrected. In the event of an increase in the exchange rate, this would lead to an increase in imports and a decrease in exports due to an increase in the prices of domestic goods versus foreign goods, and this would lead to a decrease in the economic growth rate (lower gross domestic product) due to an imbalance in the balance of payments resulting from a deficit in the trade balance position.

2.1 Results of The Model Stability Test

The unit root test of Philips-Perron (P.P.) is used in this context since the extent of the search variables is more precise than the rest of the tests. Table (10) indicates the unit root presence at the original level in the time series of the variables under study (except for the exchange rate variable). This means accepting the null hypothesis (Ho) that states that the time series is not inactive and that this is confirmed by the prob value since at their original level it exceeded (5 per cent). When they took the first difference, the value of the test was lower than static (5 per cent). It is, therefore, an integral part of the first degree (1) I. We also note that the exchange rate time series was static to the original level, which means that it is an integral class of zero (0) I.

Table (10). P.P. test results for the variables exchange rate, inflation, G.D.P., exports and imports

Test results P.P.						
variable	level			first differences		
	Fixed limit only	A fixed limit and a general trend	Without a fixed limit and a general trend	Fixed limit only	A fixed limit and a general trend	Without a fixed limit and a general trend
	Prob*	Prob*	Prob*	Prob*	Prob*	Prob*
Ex ~ I(0)	0.000	0.07	0.04			
GDP ~ I(1)	0.51	0.74	0.91	0.005	0.025	0.001
Inf ~ I(1)	0.52	0.59	0.07	0.008	0.042	0.000
M ~ I(1)	0.13	0.82	0.63	0.000	0.000	0.000
X ~ I(1)	0.40	0.59	0.75	0.000	0.000	0.000

* The probability value method (Prob) was used, according to which the parameter is significant if the value of (Prob) is less than (0.05), and this indicates the absence of the time series from the unit root.

a- Model estimation

In order to fulfil the research hypotheses, this model was divided into four models to demonstrate the effect of exchange rates on the variables mentioned above, as follows:

- Model of the exchange rate and G.D.P.

The Phillips Brown test shows the difference in the degree of dormancy of the two variables. The first (the exchange rate) was the original level and the second (G.D.P.) the first difference. This results in the possibility of a joint integration test using ARDL methodology.

2.2 Cointegration test results using ARDL methodology

Table results (11) show that the null hypothesis is accepted according to the limit test. There is no long-term relationship between the two variables under study. 3.62) significantly (5 per cent) This result is illogical in macroeconomic theory as it affects the gross domestic product. However, we are faced with the real rent of the Iraqi economy and the weakness of the flexibility of the production apparatus and the dependence on imports to bridge the widening demand gap As researchers. We accept this result as it corresponds to the current economic reality under study.

Table (11). The ARDL test results

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	1.733992	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Actual Sample Size	62	Finite Sample: n=65		
		10%	3.143	3.623
		5%	3.787	4.343
		1%	5.35	6.017
		Finite Sample: n=60		
		10%	3.127	3.65
		5%	3.803	4.363
		1%	5.383	6.033

- **Granger Causality Test Results**

The Granger causality test confirms the results of the joint integration test, as it is apparent from Table (12) that in both directions, there is no short-term causal link between exchange rates and G.D.P. As it reached more than (5 per cent), this is confirmed by the value of Prob, and it is a statistically insignificant value because it is greater than (5 per cent) (5 per cent). This outcome is appropriate and is compatible with the macroeconomic theory.

Table (12) Granger causality test results between exchange rates and G.D.P. in Iraq

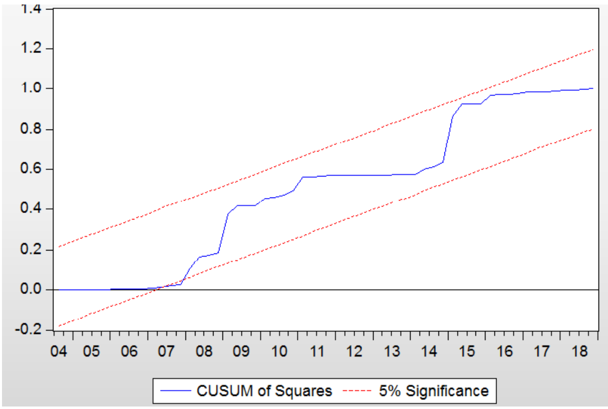
Pairwise Granger Causality Tests
Date: 07/13/20 Time: 11:44
Sample: 2003Q1 2018Q4
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
EX does not Granger Cause GDP	62	0.49630	0.6114
GDP does not Granger Cause EX		0.36725	0.6943

- **ARDL Stability Test Results Estimated Model**

The structural stillness of the ARDL-estimated model must be tested to ensure its results are accurate and accurate through the cumulative sum of recursive residuals as well as the cumulative sum of the recursive residuals developed by Brown et al. (Browen et al.). From the two tests within the critical limitation level (5 per cent). In this case, the null hypothesis states that the variables under study are static. The two forms of the above tests show that the parameters will remain in the estimated model in the short and long term (ARDL). This is because the two test curve is within critical limits and varies at a significant level around zero (5 per cent).

Figure (3). Results of (CUSUM and SUSUMSQ) exchange-rate model and G.D.P. test



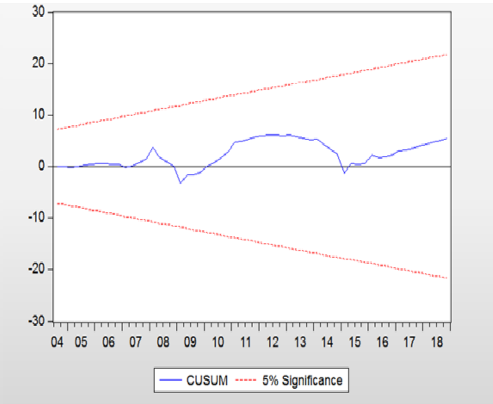


Table (13)
Two diagnostic tests for the estimated model in the Iraqi economy

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.589800	Prob. F(2,55)	0.5579
Obs*R-squared	1.301810	Prob. Chi-Square(2)	0.5216

Heteroskedasticity Test: ARCH

F-statistic	0.450486	Prob. F(2,57)	0.6396
Obs*R-squared	0.933635	Prob. Chi-Square(2)	0.6270

Model of Exchange Rates and Inflation

In accordance with the unit root test, we determined the degree of integration of the two variables. In order to allow us to choose the appropriate methodology to be used in the joint integration test, we now recommend that the test mentioned above be carried out.

2.3 Cointegration test results using ARDL methodology

According to the boundary test, it is evident from the results of Table (14) that the null hypothesis is accepted, which states that there is no long-term relationship between the two variables under study. This is confirmed by the calculated value of F, as it has reached its value (1.75), which is lower than the minimum table value, which is (3.62) at a significant level (5 per cent). This result is illogical in terms of macroeconomic theory as the exchange rate affects the rate of inflation through the currency sales window and that exchange rate stability leads through central bank policy to stability, moderation and low inflation rate Target inflation through the currency sales window. In addition to the analytical aspect that we completed in the second chapter of this thesis, this is very obvious on the ground, so the researcher sees the lack of credibility and validity of this statistical outcome. This encourages us to perform a causal test for Granger, as it demonstrates the short-term relationship between the two variables since the effect of the two variables is more focused on the short-term than the long-term. The existence of a causal and one-way relationship from the exchange rate to the inflation rate became clear from Table (14), as we showed in the second chapter (A For the analytical aspect), and this is confirmed by the value of Prob as it reached (0.04), which is less than the value of Prob as it reached (0.04) (5 per cent). This is a statistically important value, as it is consistent with the macroeconomic theory and policy of the central bank followed in this regard and the vision of the researcher.

Table (14). Results of ARDL testing currency integration and inflation rate.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	1.754719	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Actual Sample Size	62		Finite Sample: n=65	
		10%	3.143	3.623
		5%	3.787	4.343
		1%	5.35	6.017
			Finite Sample: n=60	
		10%	3.127	3.65
		5%	3.803	4.363
		1%	5.383	6.033

Granger Causality Test Results

The Granger causality test confirms the joint integration test results. Table (15) shows no short-term causal relationship between exchange rates and G.D.P. in both directions. This indicates that the value of Prob, as it was higher than (5 per cent), is statistically insignificant because it is higher than (5 per cent),. This is acceptable and consistent with macroeconomic theory.

Table (14). Granger causality test results

Pairwise Granger Causality Tests
Date: 07/13/20 Time: 11:44
Sample: 2003Q1 2018Q4
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
EX does not Granger Cause GDP	62	0.49630	0.6114
GDP does not Granger Cause EX		0.36725	0.6943

ARDL Test Results for The Estimated Model

In order to ensure the correctness and accuracy of its results, the structural staticity of the estimated model is tested by the ARDL method by testing the cumulative sum of the dependent residues and testing the cumulative sum of residual residue squares (Swindles et al., 2018). If the curve for each of the two tests is within the critical limits, the null hypothesis is accepted at the level of (5 per cent) in this situation, stating that the variables are static. From the two forms of the above tests, we note that the parameters will remain in the estimated model's short and long term (ARDL) because the curve according to the two tests is within the critical limits and varies at a significant level around the zero value (5 per cent).

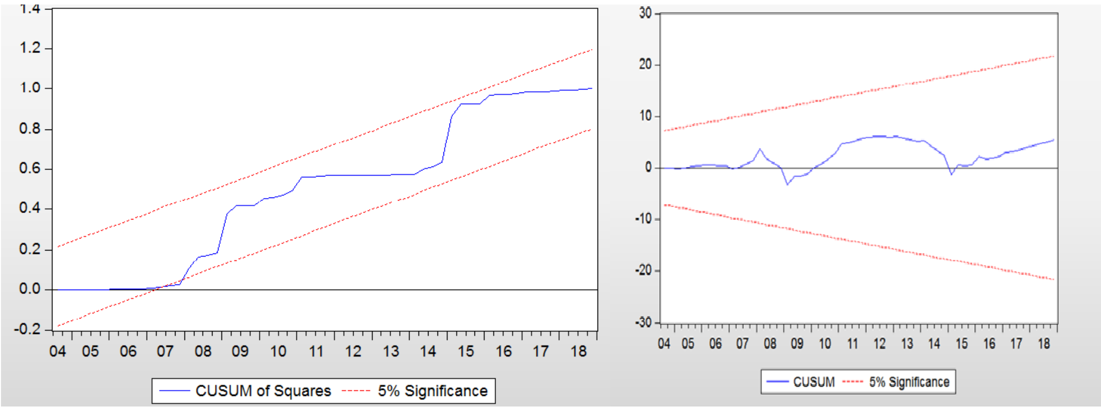


Figure (4). Results of (CUSUM and SUSUMSQ) test of the model

In conclusion, the statistical tests show that the estimated model verifies whether or not the statistical problems exist? It is possible to rely on the quality of that model and its results, as it is characterized by the absence of a problem of self-correlation in it, as evidenced by the Breusch-Godfrey Serial Correlation L.M. Test, as the value of Prob Chi-square (1) (0,52) is greater than (5 per cent). We, therefore, accept the null hypothesis that states that there is no problem of self-correlation between remnants. The model is also characterized by the absence of the problem of homogeneity anisotropy instability as indicated by the ARCH heteroskedasticity test, as the homogeneity of the residues was demonstrated because the value of Prob Chi-square reached (0.62), which is higher than that of Prob Chi-square (0.62). (5 per cent). In the Table that follows.

Table (15). Two estimated model diagnostic tests

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.589800	Prob. F(2,55)	0.5579
Obs*R-squared	1.301810	Prob. Chi-Square(2)	0.5216

Heteroskedasticity Test: ARCH

F-statistic	0.450486	Prob. F(2,57)	0.6396
Obs*R-squared	0.933635	Prob. Chi-Square(2)	0.6270

Model of Exchange Rates and Inflation

After we determined the degree of integration of the two variables according to the unit root test, which by means of enabling us to choose the appropriate methodology to be used in the cointegration test, we now recommend to conduct the above-mentioned test.

2.4 Results of Cointegration Test Using ARDL Methodology

Table (16) shows the results of the limit test, accepting the null hypothesis, which states that there is no long-term relationship between the two variables under study. This is confirmed by the calculated value of F, as its value reached (1,75) is lower than the minimum tabular value. Itis (3,62) at a significant level (5%) and this result are illogical from the point of view of macroeconomic theory as the exchange rate affects inflation through the currency sales window. Exchange-rate stability leads to stable, moderate inflation rates and their decline through central bank policy. Targeting inflation through the currency selling window is what we see on the ground in addition to the analytical aspect. So, the researcher considers the lack of credibility and validity of this statistical result, which prompts us to conduct a Granger causal test as it shows the short-term relationship. It is more appropriate between the two variables as the influence of the two variables is more focused on the short-term than the long-term. Table (16) shows the existence of a causal and one-way relationship between exchange rate and inflation rate, as shown in the second chapter (the analytical aspect), This is confirmed by the value of Prob attained (0.04), which is less than (5 per cent). This is a statistically significant value as it follows the macroeconomic theory and central bank policy and the vision of the researcher in this regard.

Table (16). ARDL test results to jointly integrate the two variables

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	1.754719	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Actual Sample Size	62		Finite Sample: n=65	
		10%	3.143	3.623
		5%	3.787	4.343
		1%	5.35	6.017
			Finite Sample: n=60	
		10%	3.127	3.65
		5%	3.803	4.363
		1%	5.383	6.033

Table (17)

Results of the Granger causality test between exchange rates and inflation rate in Iraq

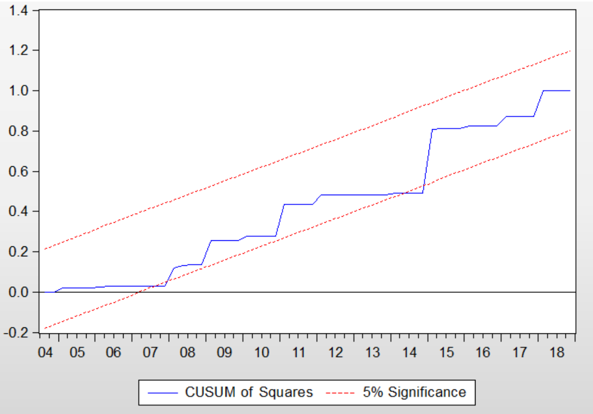
Pairwise Granger Causality Tests
Date: 07/17/20 Time: 00:08
Sample: 2003Q1 2018Q4
Lags: 3

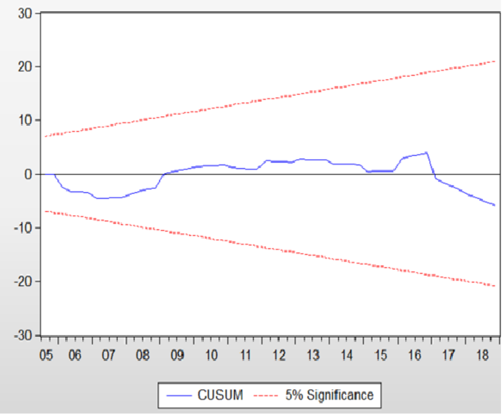
Null Hypothesis:	Obs	F-Statistic	Prob.
EX does not Granger Cause INF	61	1.11176	0.0407
INF does not Granger Cause EX		2.95048	0.3524

ARDL Stability Test Results Estimated Model

The structural quietness of the estimated model should be tested by ARDL method to ensure the accuracy and accuracy of its results, testing the cumulative sum of recursive residuals and testing the cumulative sum of residual squares. Brown et al. squared the cumulative sum of recursive residuals (Carreón-Gutiérrez & Saiz-Álvarez, 2019). If the curve for each of the two tests is within the critical limits at a level of (5 per cent), then the null hypothesis that states the variables under study are static is accepted. From the two figures of the two tests mentioned, it is clear that the parameters will remain in the estimated model's short and long term (ARDL) because the curve according to the two tests is within the critical limits and varies at a significant level around the zero (5 per cent).

Figure (3). Model's results (CUSUM and SUSUMSQ)





In conclusion, do the statistical tests examine whether there are statistical problems in the estimated model? This model's quality and results can be relied on, as it is characterized by the absence of a problem of self-correlation in it, as evidenced by the Breusch-Godfrey Serial Correlation L.M. Test. (Prob Chi-square (1) (0,51) is higher than (5 per cent). That is, we accept the null hypothesis of no problem of self-correlation between residues. The model is also characterized by the absence of the problem of homogeneity anisotropy inconsistency as evidenced by the Heteroskedasticity Test ARCH test, as the homogeneity of the residues was proved because the value of Prob Chi-square was higher than 0.33. (5 per cent). The Table below shows it.

Table (18). Two diagnostic tests for the estimated model

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.604848	Prob. F(2,55)	0.5497
Obs*R-squared	1.334310	Prob. Chi-Square(2)	0.5132

Heteroskedasticity Test: ARCH

F-statistic	1.080214	Prob. F(2,57)	0.3464
Obs*R-squared	2.191088	Prob. Chi-Square(2)	0.3344

Model of The Exchange Rate and Exports

According to the Phillips Brown test, the unit root test shows the difference in the degree of dormancy of both variables. The first (the exchange rate) was the original level, and the second (exports) was the first difference. This allows the application of a joint integration test using ARDL methodology.

2.5 - Results of cointegration test using ARDL methodology

According to the limit test, the acceptance of the null hypothesis is clear from the findings of Table (19). It states that the two variables under study do not have a long-term relationship, and this is confirmed by the calculated value of F, as its value is (1.24) and is lower than the minimum table value, which is (3, 62) at the level of significance (5 per cent). As the exchange rate affects exports through the prices of exported goods compared to their counterparts overseas, this result is illogical in terms of macroeconomic theory, and this result is consistent with the nature of the Iraqi economy. In addition to its compatibility with what we've achieved on the analytical side, it suffers from an imbalance in its economic and trade structure. Thus, from a statistical and economic point of view, the researcher sees the validity and accuracy of this result, and in order to actually verify this result, we can perform a causation test for Granger as it demonstrates the short-term relationship between the two variables, as was evident from the Table (18). The lack of a causal relationship between the two variables is confirmed by the value of Prob, as it has reached more than (5 per cent). This is a statistically important value and confirms the results we achieved in the joint integration test.

Table (19). ARDL Test Results for Joint

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	2.241125	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Actual Sample Size	63		Finite Sample: n=65	
		10%	3.143	3.623
		5%	3.787	4.343
		1%	5.35	6.017
			Finite Sample: n=60	
		10%	3.127	3.65
		5%	3.803	4.363
		1%	5.383	6.033

Integration

Table (20). Granger Causality Test results

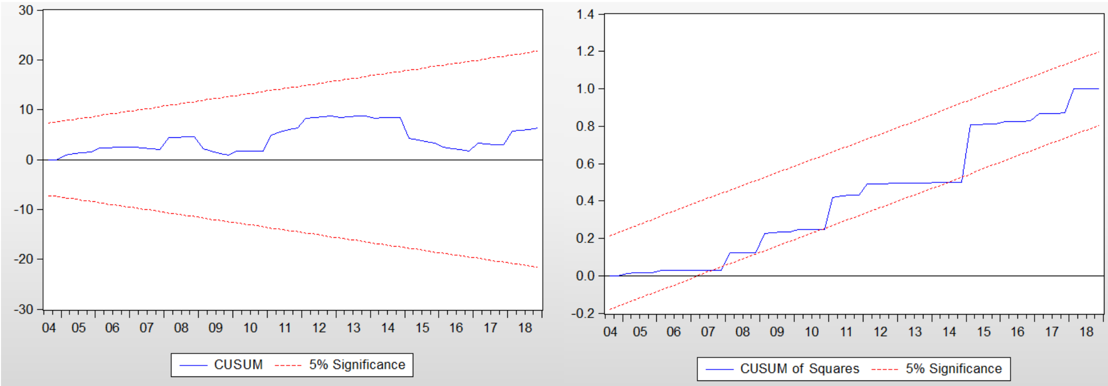
Pairwise Granger Causality Tests
Date: 07/17/20 Time: 13:42
Sample: 2003Q1 2018Q4
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
EX does not Granger Cause X	62	0.50061	0.6088
X does not Granger Cause EX		0.16926	0.8447

ARDL Stability Test Results for Estimated Model

The structural quietness of the estimated model should be tested by ARDL method to ensure the accuracy and accuracy of its results, testing the cumulative sum of recursive residuals and testing the cumulative sum of residual squares. The cumulative sum of the recursive residuals squared and developed by Brown et al. (Brown, Durbin, & Evans, 1975). If the curve for each of the two tests is within the critical limits at a level of (5 per cent), then the null hypothesis that states the variables under study are static is accepted. From the two figures of the two tests mentioned, it is clear that the parameters will remain in the estimated model's short and long term (ARDL) because the curve according to the two tests is within the critical limits and varies at a significant level around the zero (5 per cent).

Figure (4). Results Of (CUSUM and SUSUMSQ) Test



In conclusion, do the statistical tests examine whether there are statistical problems in the estimated model? This model's quality and results can be relied on. It is characterized by the absence of a problem of self-correlation, as evidenced by the Breusch-Godfrey Serial Correlation L.M. Test, since the Prob Chi-square value (1) (0,84) is higher than that (5 per cent). That is, we accept the null hypothesis of no problem of self-correlation between remnants. The model also features the absence of the instability problem of homogeneity anisotropy as evidenced by the Heteroskedasticity Test ARCH test. The homogeneity of the residues was proven as the value of Prob Chi-square was higher than 0.45. (5 per cent). Table below.

Table (21). Two estimated model diagnostic tests

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.158235	Prob. F(2,58)	0.8540
Obs*R-squared	0.341887	Prob. Chi-Square(2)	0.8429

Heteroskedasticity Test: ARCH

F-statistic	0.543300	Prob. F(1,60)	0.4639
Obs*R-squared	0.556372	Prob. Chi-Square(1)	0.4557

The Model of Exchange Rates and Imports

After we determined the degree of integration according to the unit root test. It is a means of enabling us to choose the appropriate methodology for cointegration testing. We now recommend the above-mentioned test.

Common Integration Test Results Using ARDL

According to the limit test, the acceptance of the null hypothesis shows that there is no long-term relationship between the two variables under study. This is confirmed by the calculated value of F as its value reached (1.94) and is lower than the minimum tabular value (3, 62) (5 per cent). This result is illogical in macroeconomic theory, as the exchange rate affects imports through the prices of manufactured goods compared to their imported counterparts. This result is consistent with the nature of the Iraqi economy, which suffers from an imbalance in its economic and commercial structure, and is consistent with what we have achieved analytically. So, the researcher sees the validity and accuracy of this result from a statistical and economic point of view, and we can conduct the Granger causality test to verify this result. It shows the short-term relationship between the two variables, as is apparent from Table (22) The absence of a causal relationship between the two variables and in both directions, and this is confirmed by the value of Prob, as it exceeds that (5 per cent). This is a statistically significant value besides confirming the results of the joint integration test.

Table (22). Results of the ARDL test for the common integration

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	1.949395	10%	3.02	3.51
k	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Actual Sample Size	63		Finite Sample: n=65	
		10%	3.143	3.623
		5%	3.787	4.343
		1%	5.35	6.017
			Finite Sample: n=60	
		10%	3.127	3.65
		5%	3.803	4.363
		1%	5.383	6.033

Table (23). Causality tests between exchange rates and imports

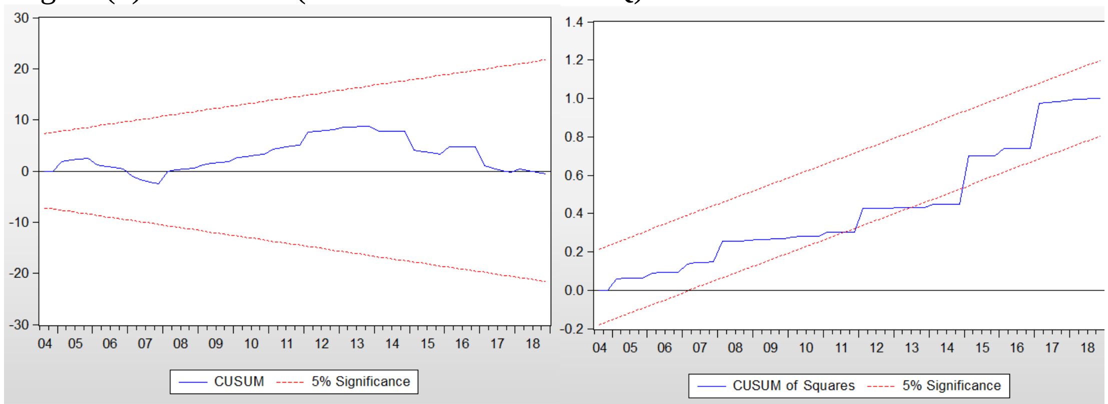
Pairwise Granger Causality Tests
Date: 07/17/20 Time: 14:35
Sample: 2003Q1 2018Q4
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
EX does not Granger Cause M	62	0.57128	0.5680
M does not Granger Cause EX		0.01583	0.9843

ARDL Stability Test Results for Estimated Model

The structural quietness of the estimated model should be tested by ARDL method to ensure the accuracy and accuracy of its results, testing the cumulative sum of recursive residuals and testing the cumulative sum of residual squares. The cumulative residuals squared and developed by Brown et al. (Brown et al., 1975). If, in this case, the curve for each of the two tests is within the level of the critical limit of (5 per cent). The null hypothesis is accepted that the variables are static. From the two figures of the two tests mentioned, it is clear that the parameters will remain in the estimated model's short and long term (ARDL) because the curve according to the two tests is within the critical limits and varies at a significant level around the zero (5 per cent).

Figure (3). Results of (CUSUM and SUSUMSQ) test of the model



In conclusion, do the statistical tests examine whether there are statistical problems in the estimated model? This model's quality and results can be relied on, as it is characterized by the absence of a problem of self-correlation in it, as evidenced by the Breusch-Godfrey Serial Correlation L.M. Test. Prob Chi-square (1) (0.87) is above (5 per cent), i.e. We accept the null hypothesis of no problem of autocorrelation between residues. The model also features the absence of the instability problem of homogeneity anisotropy as evidenced by the Heteroskedasticity Test ARCH test. The residue homogeneity was proven because the value of Prob Chi-square was higher than 0.40 (5 per cent). Table below.

Table (24). Two diagnostic tests for the estimated model

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.125851	Prob. F(2,58)	0.8820
Obs*R-squared	0.272220	Prob. Chi-Square(2)	0.8727

Heteroskedasticity Test: ARCH

F-statistic	0.684310	Prob. F(1,60)	0.4114
Obs*R-squared	0.699146	Prob. Chi-Square(1)	0.4031

Conclusions and Discussion

Following the central bank's fixed exchange rate system contributed to its goal of targeting inflation through the foreign currency sales window. Significant weakness in the performance of the national economy and its structural deformation. It suffers due to the lack of efficient management of economic resources due to the large financial capacity and lack of exploitation. The depreciation of the Iraqi dinar exchange rate does not increase Iraqi exports, as most of it is oil. It is a vibrant international commodity, and its demand is present in a country without another will reflect a weak relationship between exchange-rate changes and real oil-free output. In times of real increase in output corresponding to a fall in the exchange rate, non-oil exports are weak, and imports are increasing, contrary to the overall economic theory, but it is consistent with the retirement nature of the oil-dependent national economy. Reducing the dinar exchange rate has a positive impact on government revenues due to the exchange reduction difference. Then the increase in expenditure to reflect total demand in view of the shortage of total supply and the increase in imports whose prices increased due to the reduction in exchange rates and reflected in the high levels of inflation and the increase in the phenomenon of poverty suffered Including Iraq. The Central Bank's success in reducing the size of the gap between official and parallel exchange rates to narrow limits was (15) in 2018 due to the impact of successful Central Bank policies on parallel markets. Foreign reserves are the main tool for achieving balance in the exchange market through the window of selling foreign currency, as these reserves enabled the process of improving and stabilizing the exchange rate in a manner that matches the prevailing economic, political and social conditions in the country. The monetary authority represented by Iraq's Central Bank must raise the dinar exchange rate in view of weak non-oil exports and weak domestic production and dependence on bridging the demand gap for foreign importers, as this rise has positive effects on the emerging economy to achieve economic development. Not to reduce the value of the local currency due to the structural deformation of the national economy and to contribute to an increase in import prices without accompanying an increase in exports due to Iraq's dependence on oil exports. Approximately (90 per cent) of total exports. The need to use multiple exchange rates by type of imported goods and the extent of their priorities in relation to the overall demand structure. The need to work to limit capital flows outside by emphasizing the rigour of the audit process in the extent of the authenticity of the documents submitted to banks to support foreign import requests.

References

Abed, S. A., Ewaid, S. H., & Al-Ansari, N. (2019). Evaluation of water quality in the Tigris River within Baghdad, Iraq using multivariate statistical techniques. Paper presented at the Journal of Physics: Conference Series.

Al-Azzawi, Z. H. I. K., & Al Dulaimi, H. A. M. (2020). THE IMPACT OF THE INVESTMENT ENVIRONMENT IN ATTRACTING FOREIGN INVESTMENT TO IRAQ FOR THE PERIOD (2004-2018). PalArch's Journal of Archaeology of Egypt/Egyptology, 17(10), 2022-2038.

Almagtome, A., & Abbas, Z. (2020). Value Relevance of Financial Performance Measures: An Empirical Study. International Journal of Psychological Rehabilitation, 24(7), 6777-6791.

Almagtome, A., Khaghaany, M., & Önce, S. (2020). Corporate Governance Quality, Stakeholders' Pressure, and Sustainable Development: An Integrated Approach. International Journal of Mathematical, Engineering and Management Sciences, 5(6), 1077-1090.

Almagtome, A., Shaker, A., Al-Fatlawi, Q., & Bekheet, H. (2019). The Integration between Financial Sustainability and Accountability in Higher Education Institutions: An Exploratory Case Study. International Journal of Innovation, Creativity and Change, 8(2), 202-221.

Almagtome, A. H., Al-Yasiri, A. J., Ali, R. S., Kadhim, H. L., & Bekheet, H. N. (2020). Circular Economy Initiatives through Energy Accounting and Sustainable Energy Performance under the Integrated Reporting Framework. International

Journal of Mathematical, Engineering and Management Sciences, 5(6), 1032-1045.

Amagtome, A. H., & Alnajjar, F. A. (2020). Integration of Financial Reporting System and Financial Sustainability of Nonprofit Organizations: Evidence from Iraq. International Journal of Business & Management Science, 10(1), 27-47.

Brown, R. L., Durbin, J., & Evans, J. M. (1975). Techniques for testing the constancy of regression relationships over time. Journal of the Royal Statistical Society: Series B (Methodological), 37(2), 149-163.

Carreón-Gutiérrez, J. P., & Saiz-Álvarez, J. M. (2019). Product Newness, Low Competition, Recent Technology, and Export Orientation as Predictors for Entrepreneurial Growth Aspirations. Sustainability, 11(20), 5818.

Dornbusch, R. (1982). Exchange rate economics: where do we stand? In International economics policies and their theoretical foundations (pp. 557-599): Elsevier.

Faisal, F. G. (2019). The dynamic relationship between the exchange rate and the trade balance Iraq: An Empirical Study. AL-Anbar University journal of Economic and Administration Sciences, 11(24).

Kbelah, S., Almusawi, E., & Almagtome, A. (2019). Using Resource Consumption Accounting for Improving the Competitive Advantage in Textile Industry. Journal of Engineering and Applied Sciences, 14(2), 275-382.

Khaghaany, M., Kbelah, S., & Almagtome, A. (2019). Value relevance of sustainability reporting under an accounting information system: Evidence from the tourism industry. African Journal of Hospitality, Tourism and Leisure, 8(Special Edition CUT), 1-12.

Rapetti, M., Skott, P., & Razmi, A. (2012). The real exchange rate and economic growth: are developing countries different? International Review of Applied Economics, 26(6), 735-753.

Swindles, G. T., Morris, P. J., Whitney, B., Galloway, J. M., Gałka, M., Gallego-Sala, A., . . . Amesbury, M. J. (2018). Ecosystem state shifts during long-term development of an Amazonian peatland. Global change biology, 24(2), 738-757.

Yin, Y., Stecke, K. E., & Li, D. (2018). The evolution of production systems from Industry 2.0 through Industry 4.0. International Journal of Production Research, 56(1-2), 848-861.