# Analysis and measurement of the impact of foreign trade on foreign money demand and the Central Bank of Iraq reserve: Period (2004-2020)

## By

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## Abstract:

The research focuses on the important role that foreign trade (especially oil exports) poses in doubling or reducing reserves through the element of leakage resulting from imports that are restricted by the Central Bank and the Ministry of Finance. Based on the research hypothesis of the impact of foreign trade on foreign exchange demand and the Central Bank of Iraq's reserves, exports and revenues have shown that foreign trade has an impact on foreign exchange demand and the Central Bank of Iraq's reserves, according to changes in global oil prices, there has been a change in Iraq's foreign exchange earnings. Obtained by the Ministry of Finance and then exchanged a section in Iraqi dinars with the Central Bank of Iraq to cover its internal expenditure; The remainder of her foreign exchange is approved to cover her imports. One of the most important recommendations was the construction of an advanced production apparatus in the form of diversification of the country's domestic product components, which has a positive impact on its exports and thus avoids the problem of commodity concentration of Iraq's exports This creates some stability in its value by limiting the effects of fluctuations in States consuming Iraq's oil exports.

**Keywords**: foreign money; Central Bank of Iraq; Period (2004-2020)

## Introduction:

Foreign reserves play an important role in economic studies, in particular macroeconomic (monetary, trade, as well as financial) policies. Given the importance of foreign reserves to economic stability, especially monetary stability, those reserves reflect the centrality's potential to influence foreign exchange demand (and external balance), It also influences its external trade activities and specifically the financing of private sector income. In Iraq, the Central Bank's demand for foreign money through its purchases from the Ministry of Finance is almost the only source. Foreign trade demand for foreign money is a demand derived from the total demand created by public expenditures covered and financed by monetary authorities, which in turn affects the size of foreign reserves available to the central authority through surpluses from its foreign exchange operations. The Central Bank's foreign exchange purchases represent the source of foreign assets and reserves, while the restriction of imports represents a leakage of those reserves. Hence the idea of research to analyze the impact of trade restraint on foreign exchange demand and central bank reserves.

*1.      First. Theoretical framework for foreign trade, foreign money demand and central bank reserve.*

*2.      Foreign trade:*

Foreign trade is defined as the completion of trade between the state and the outside world. It is also known as one of the most important forms of economic relations through which the process of exchanges of goods and services between countries in both exports and revenues is accomplished. It must be emphasized that any country is difficult to achieve a policy of self-sufficiency over a long period of time because this makes it necessary for the country to produce all the needs of the society without the need to import. This is difficult to achieve given the reality whether it is the wishes of the society or economic or other conditions other factors also make the country in international isolation. What applies to individuals applies to countries where an individual cannot live in isolation from the rest of society, as does the country with the outside world.

*3.      Foreign money and the importance of dealing with it*

Foreign money is defined as an asset available in the State consisting of currencies of other countries, including deposits on request or for the term and in the currencies of these countries in addition to foreign currency securities, as well as financial obligations towards countries and regional and international bodies that can be converted into ready cash Its importance lies in the achievement of international trade between countries, requiring the State to pay a portion of its import dues in foreign exchange. It receives a portion of the value of its exports in foreign exchange.

*4.      Foreign reserves*

Foreign reserves are the amount of available balances or assets that are adopted to address distortions in the country's balance of payments, including cash gold and capital currencies for use in making inter-state payments in addition to financing the country's trade.

*5.      Second. Analysis of some foreign trade variables*

*6.      Trade Exposure and Balance Index*

The trade exposure index for Iraq, like the rest of the developing countries, shows that foreign trade has an important role to play and thus the results of opening up Iraq's economy will be high. Iraq's trade balance also reflects the imbalance experienced by the country's consumer or investment business activity, Table 1 shows that, in 2004, Iraq's trade balance had a deficit of $3492 million, as a result of more than $21,302 million in imports against exports of $17,810 million, while the total trade for the same year was $39,112 million. The degree of trade openness was 106.75%. It is the highest trade openness for Iraq during the period of the study. This considers its economy to be commercially open with the countries of the world. The trade-to-GDP indicators show the extent to which it has been commercially exposed, notably from table 8 in 2016, the balance of trade achieved a surplus of $12221.3 million, mainly as a result of a decline in Iraq's income at $29,077 million, Commercial openness was about (42.53%), the lowest during the study period as a result of low oil prices, and this can be explained by figure (1).

**Table 1:** Trade Exposure Index and Structure of Iraq's Trade Balance for the Period (2004-2020) ($ Million).

| Year | Total exports | Total imports | Total foreign trade | Total GDP | Commercial detector | Commercial balance |
|------|------|------|------|------|------|------|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| 2004 | 17810 | 21302 | 39112 | 36638.24 | 106.75 | (3492) |
| 2005 | 23697.4 | 20002.2 | 43699.6 | 50056.91 | 87.30 | 3695.2 |
| 2006 | 30529.4 | 18707.5 | 49236.5 | 65158.80 | 75.56 | 11821.9 |
| 2007 | 39587 | 16622.5 | 56209.5 | 88809.41 | 63.29 | 22964.5 |
| 2008 | 63726 | 30171.2 | 93897.2 | 131622.85 | 71.34 | 33554.8 |
| 2009 | 39430 | 32673.3 | 72103.3 | 111660.85 | 64.57 | 6756.7 |
| 2010 | 51763.6 | 37328 | 89091.6 | 138516.72 | 64.32 | 14435.6 |
| 2011 | 79681 | 40632.5 | 120313.5 | 185749.66 | 64.77 | 39048.5 |
| 2012 | 94171.6 | 47798.6 | 141970.2 | 218032.15 | 65.11 | 46373 |
| 2013 | 89769.4 | 49976.5 | 139745.9 | 234637.67 | 59.56 | 39792.9 |
| 2014 | 83980.9 | 45200.1 | 129181 | 228415.66 | 56.56 | 38780.8 |
| 2015 | 51327.7 | 40808.5 | 92136.2 | 164010.93 | 56.18 | 10519.2 |
| 2016 | 41298.3 | 29077 | 70375.3 | 165482.47 | 42.53 | 12221.3 |
| 2017 | 57559.1 | 32185.6 | 89744.7 | 189682.67 | 47.31 | 25373.5 |
| 2018 | 86359.9 | 38875.7 | 125235.6 | 210978.55 | 59.36 | 47484.2 |
| 2019 | 81585.2 | 49417.6 | 131002.8 | 220938.78 | 59.29 | 32167.6 |
| 2020 | 46810.7 | 40927.3 | 87738 | 166199.27 | 52.79 | 5883.4 |

**Source -** Central Bank of Iraq, Directorate General of Statistics and Research, annual bulletin, miscellaneous years.- The proportions within the parentheses are negative.

**Figure (1):** Iraq's Trade Exposure Index for the Period (2004-2020)
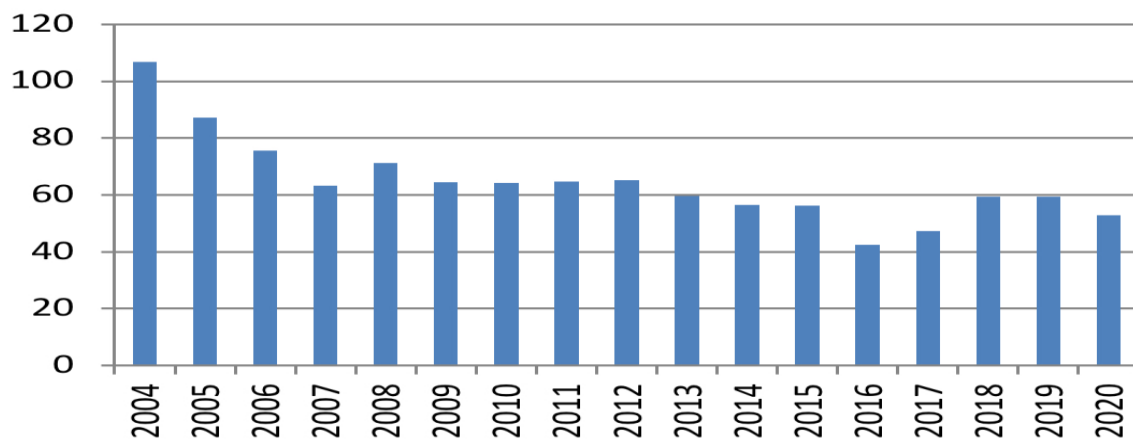


**Source:** Researcher's work based on the data in table (1).

## 1.  *Relationship between exports and foreign reserves and procurement-to-exports ratio*

The Centre continues to sell foreign money at the expense of foreign reserves, to meet the demand of individuals and institutions for currency, especially in the case of the deficit in the country's trade balance, Table 2 in 2004 shows that the central foreign exchange

purchases amounted to $10,852 million. The most important proceeds were from the Ministry of Finance, which accounted for approximately 60.65%. The remaining Ministry of Finance ($7008 million), while total central reserves amounted to about $93,5082 million. Contemporary reality confirms that one of the most important sources of accumulation of foreign reserves held by the Central Bank is mainly caused by exchanges and transactions obtained through its offshore business. In 2008, the total purchases by the Central Bank of the dollar doubled at $45,850 million. The proportion of purchases from the Ministry of Finance to the volume of exports was about 71.40%. The remaining size of the Ministry of Finance was $18,226 million, at which time the reserve of the Central Bank of Iraq was $505,2087.7 million and at a growth rate of approximately 59.35%.

**Table 2:** Purchases by the Central Bank of Iraq and the remaining Ministry of Finance of foreign money for the period (2004 - 2020) ( $1 million)

| Year | Total exports | Procurement from the Ministry of Finance | Purchases from the window selling currency | Total purchases | The Ministry of Finance is remaining from the foreign currency(3-2) | Percentage of the Ministry of Finance to exports | Foreign precautions | Growth rate % |
|------|------|------|------|------|------|------|------|------|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 2004 | 17810 | 10802 | 50 | 10852 | 7008 | 60.65 | 935082.0 | --- |
| 2005 | 23697 | 10600 | 78 | 10678 | 13097 | 44.73 | 1352915.3 | 44.68 |
| 2006 | 30529 | 18000 | 110 | 18110 | 12529 | 58.96 | 1920449.0 | 41.95 |
| 2007 | 39587 | 26700 | 1413 | 28113 | 12887 | 67.45 | 3170348.0 | 65.08 |
| 2008 | 63726 | 45500 | 350 | 45850 | 18226 | 71.40 | 5052087.7 | 59.35 |
| 2009 | 39430 | 23000 | 13 | 23013 | 16430 | 58.33 | 4479046.6 | (11.34) |
| 2010 | 51764 | 41000 | 4 | 41004 | 10764 | 79.21 | 5131525.0 | 14.57 |
| 2011 | 79681 | 51000 | 3 | 51003 | 28681 | 64.01 | 6353896.9 | 23.82 |
| 2012 | 94209 | 57000 | 4 | 57004 | 37209 | 60.50 | 7436810.9 | 17.04 |
| 2013 | 89768 | 62000 | 00 | 62000 | 27768 | 69.07 | 8214374.8 | 10.46 |
| 2014 | 83981 | 47515 | 00 | 47515 | 36466 | 56.58 | 6805638.2 | (17.15) |
| 2015 | 51328 | 32450 | 00 | 32450 | 18878 | 63.22 | 5582511.2 | (17.97) |
| 2016 | 41298 | 25653 | 00 | 25653 | 15645 | 62.12 | 4769571.4 | (14.56) |
| 2017 | 57559 | 40355 | 00 | 40355 | 17204 | 70.11 | 5127045.6 | 7.49 |
| 2018 | 86360 | 52229 | 00 | 52229 | 34131 | 60.48 | 6387983.2 | 24.59 |
| 2019 | 81585 | 58851 | 00 | 58851 | 22734 | 72.13 | 6715798.3 | 5.13 |
| 2020 | 46811 | 30730 | 00 | 30730 | 16081 | 65.65 | 6595484.9 | (1.79) |

**Source:** Central Bank of Iraq, Director General of Statistics and Research, annual statistical bulletin, miscellaneous.
- The proportions within the brackets are negative.

*2.    Third: Benchmark analysis of the impact of foreign trade on foreign exchange demand and the Central Bank of Iraq's reserve for the period (2004-2020)*

*3.    Impact of exports and central bank foreign exchange purchases on foreign reserves:*

**Table 3:** Long-term estimates of changes in total exports, total central bank currency purchases and foreign reserves index

Levels Equation
Case 2: Restricted Constant and No Trend

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| X1 | -113.5098 | 70.00919 | -1.621355 | 0.1107 |
| X2 | 286.2791 | 102.4597 | 2.794065 | 0.0072 |
| C | 1390362. | 772468.4 | 1.799894 | 0.0774 |

EC = Y1 - (-113.5098*X1 + 286.2791*X2 + 1390361.5054)

**Source:** Table of the researcher's work based on the statistical programmer (EViews: 12).

Table 3 shows the results of the long-term relationship between export variables and the Central Bank's currency purchases and the foreign reserves index, and shows that the parameters of the model ($X_1$) were statistically immoral in the long term, In the sense that there is no long-term balance between the value of exports towards the foreign reserves index, while the results show a long-term correlation between the total purchases of the central bank of the currency ($X_2$) and the foreign reserves index, where the knowledge ($X_2$) appears morally at the level (1%, 5%, 10%), which corresponds to the logic of the Iraqi economy.

**Table 4:** Self-correlation test (LM) results for total export variables, total central bank currency purchases and foreign reserves index

Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 2 lags

| | | | |
|---|---|---|---|
| F-statistic | 0.516947 | Prob. F(2,53) | 0.5993 |
| Obs*R-squared | 1.205452 | Prob. Chi-Square(2) | 0.5473 |

**Source:** Table of the researcher's work based on the statistical programmer (EViews: 12).

Table (4) shows the results of the LM self-correlation test for total export variables and total central bank currency purchases and the foreign reserves index, table (4) shows that there is no self-correlation problem, through the Chi-square value (2), which is equal to (0.5473) and is greater than (5%), so we reject the alternative hypothesis that there is a serial sub conduction between the thresholds of the estimated model, and we accept the zero hypothesis that provides for the autonomy of errors, which means that there is no self-correlation problem.

## Economic analysis

The results confirmed that the impact of the value of exports and the value of the Central Bank's foreign exchange purchases on the foreign reserves index, that the relationship between exports ($X_1$) and foreign reserves ($Y_1$) based on economic logic, but that the reference to the word appeared negative and statistically immoral in a sense incompatible with economic logic. The relationship between the Central Bank's foreign exchange purchases ($X_2$) and foreign reserves ($Y_1$) has emerged explosively according to economic logic, while the knowledge of the total central bank currency purchases has emerged positive and statistically moral in the sense of a long-term balance between the value of the central bank's currency purchases and foreign reserves ($Y_1$).

**Table 5**
Foreign reserves relationship with total exports and total central bank currency purchases

| Variables | Foreign Reserves Y1 | P.V less than 5% |
|---|---|---|
| total exports $X_1$ | reverse | immoral |
| The total central bank purchases of currency $X_2$ | Extreme | morale |

**Source: Table of the researcher's work**

**4.    *Impact of total government and private sector imports on the foreign reserves index:***

**Table 6:** Long-term estimates of changes Total Government and private sector imports and foreign reserves index

Levels Equation
Case 2: Restricted Constant and No Trend

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| X3 | 218.1122 | 130.0435 | 1.677225 | 0.0993 |
| X4 | -142.1096 | 111.0915 | -1.279211 | 0.2063 |
| X5 | -52.56819 | 101.0530 | -0.520204 | 0.6050 |
| C | 1098808. | 1577986. | 0.696336 | 0.4892 |

EC = Y1 - (218.1122*X3 -142.1096*X4 -52.5682*X5 + 1098808.0373)

**Source:** Table of the researcher's work based on the statistical programmer (EViews: 12).

Table 6 presents the results of the long-term relationship between gross ($X_3$), government ($X_4$) and private sector ($X_5$) imports and the foreign reserves index ($Y_1$), and the results show a long-term relationship between total ($X_3$) and the foreign reserves index ($Y_1$). The knowledge of "$X_3$" appeared to be moral at the level of (10%), while in the long term the knowledge of the model ($X_4$,$X_5$) was found to be immoral, i.e., the absence of a long-term balance between government ($X_4$) and private ($X_5$) imports and the Foreign Reserves Index ($Y_1$).

**Table 7:** Results of the LM test for changes in total Government and private sector imports and foreign reserves index

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

| | | | |
|---|---|---|---|
| F-statistic | 0.002512 | Prob. F(2,52) | 0.9975 |
| Obs*R-squared | 0.006085 | Prob. Chi-Square(2) | 0.9970 |

**Source:** Table of the researcher's work based on the statistical programmer (EViews: 12).

Note from Table (7) that there is no self-correlation problem, through the Chi-Square value, which appeared to be equal to (0.9970) and is immoral at a morale level greater than (5%), We therefore reject the alternative hypothesis that there is a serial sub connectedness between the thresholds of the estimated model and accept the zero-hypothesis stating the autonomy of errors and, therefore, the absence of a self-correlation problem for the variables under consideration.

# Economic Analysis

Overall, the results demonstrated that the knowledge signal of gross income ($X_3$) was positive and statistically moral, but according to economic logic, there must be a negative

reference between total foreign income and reserves, i.e. a long-term balance between total foreign income and reserves ($Y_1$), The Government's $X_4$ has emerged negative and is consistent with economic logic but statistically immoral, that is, the absence of a long-term balance between Government $X_4$ and foreign reserves ($Y_1$). The economic relationship between private sector import ($X_5$) and foreign reserves is reverse. The increase in private sector import results in a decline in foreign reserves. The knowledge of private sector import ($X_5$) has emerged negative but statistically immoral. This means that there is no long-term balance between private sector import ($X_5$) and foreign reserves ($Y_1$).

**Table 8:** Foreign Reserves Relationship with Total Government Imports Private Sector Imports

| Variables | Foreign Reserves $Y_1$ | P.V less than 5% |
|---|---|---|
| Total imports $X_3$ | Extreme | Morale |
| Government consultations $X_4$ | reverse | Immoral |
| import private sector | reverse | Immoral |

**Source:** Table of the researcher's work

*5.    The impact of private sector demand on Central Bank purchases:*

**Table 9:** Long-term estimates of private sector demand and central bank procurement

Levels Equation
Case 2: Restricted Constant and No Trend

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| X6 | 0.793957 | 0.212257 | 3.740547 | 0.0004 |
| C | 15769.15 | 6388.524 | 2.468355 | 0.0166 |

EC = Y2 - (0.7940*X6 + 15769.1456)

*6.    : Table of the researcher's work based on the statistical programmer (EViews: 12).*
        Table 9 presents the results of the long-term relationship between private sector demand and the Central Bank's Procurement Index and shows that the knowledge of the variable ($X_6$) was moral in the long term, A long-term balance exists between private sector demand ($X_6$) and the Central Bank's Procurement Index ($Y_2$), and the results show that t has a moral statistical value at a level (10%, 5%, 1%).

**Table 10:** Results of Self-Association Test (LM) Private Sector Demand and Central Bank Procurement

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

| | | | |
|---|---|---|---|
| F-statistic | 0.172105 | Prob. F(2,55) | 0.8423 |
| Obs*R-squared | 0.391825 | Prob. Chi-Square(2) | 0.8221 |

**Source:** Table of the researcher's work based on the statistical programmer (EViews: 12).
        Note from Table (10) the results of the LM test for self-correlation of errors to the variables in question The private sector and central bank procurement request that there is no self-correlation problem through the Chi-square value (2) equal to (0.8221) and greater than (5%). So we reject the alternative hypothesis that there is a serial subjective link between the thresholds of the estimated model, and we accept the zero hypothesis that provides for the autonomy of errors.

# Economic Analysis

The results generally demonstrated that the propagation of private sector demand ($X_6$) is positive and statistically moral, which indicates a long-term balance between private sector demand ($X_6$) and central bank procurement ($Y_2$) and is consistent with economic logic and research hypothesis that there is impact Important for the demand for foreign currency on the source of foreign reserves represented by the Central Bank's purchases of foreign currency from the Ministry of Finance. These purchases also represent the Central Bank's demand for foreign currency.

**Table 11: Central** Bank procurement relationship with private sector demand

| Variables | Central Bank Purchases $Y_2$ | P.V less than 5% |
|---|---|---|
| private sector demand $X_6$ | Positive | Morale |

**Source:** Table of the researcher's work

# Fourth: Results

The value of Iraq's revenues has fallen for many years during the period of research as a result of fluctuations in the value of Iraq's exports caused mainly by fluctuations in oil prices on the global market. In contrast, current expenditures constitute the largest proportion of total actual expenditures compared to investment expenditures. Although the Central Bank of Iraq has auctioned the currency for the purpose of covering the domestic market's demand for foreign exchange, this has not contributed to the development of the production base in the national economy, This represents the absence of a clear economic policy that contributes to exiting this consumption pattern.

# Fifth: conclusion

Action to adopt a meaningful government policy through which competent are empowered to develop a long-term development plan that reflects positively on various activities within the country, Among them is social capital, which is the most important element for achieving progress in the country, since the individual is the basis for successful planning or approval by the State, as confirmed by the literature.

Allow private sector participation and support to this sector effectively because it plays an important role in meeting the domestic market's need for goods and services in a manner that reduces the volume of imports (leakage factor) and is therefore reflected in lower foreign exchange demand.

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